

Esa Alaraudanjoki

Nepalese Child Labourers' Life-contexts, Cognitive Skills and Well-being

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Cognitive Skills and Well-being

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Cognitive Skills and Well-being



UNIVERSITY OF JYVÄSKYLÄ

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ABSTRACT

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Yhteenveto: Työssäkävvien nepalilaislasten elämänkonteksti, kognitiiviset taidot ja hyvinvointi

Diss.

This dissertation thesis consists of a summary report and three substudies. In first article, the theoretical background of this thesis was reviewed under the title "Child labour – A Multi-disciplinary review" (Alaraudanjoki, 2000). The purpose was to examine the issue of child labour in the context of research in the disciplines of economics, anthropology, sociology, education, and psychology, together with the institutional contexts. The review showed that (1) the value accorded to children's participation in working life in Southern contexts depends on the degree of socioeconomic development of the particular country in question. (2) It challenged the 'truism' of the modernization theory regarding the transformation of collectivist values towards individualistic Western values. In second and third articles, the overall objective of these two empirical studies was to investigate whether the children working in the carpet factories in the city of Kathmandu differ on their cognitive skills and psychological well-being from their peers who live in the country-side and go to school. The data (N=194 Cognitive Skills; N=254 Psychological well-being) were collected in 1996-97. The children were matched for age (10-14 years), and ethnic background (Tibeto-Burmese language group, and Buddhism religion). The *main* results showed that the school group was better in all the cognitive tests, except for Digit Span Backwards where there were no differences between the school and labouring groups. *Secondly*, findings showed that the boys were better in arithmetic skills than the girls when they had long working experience. *Thirdly*, the labouring children reported higher levels of anxiety compared to the school children. *Fourthly*, the school group showed a lower internal locus of control than the labourers. External locus of control was found to correlate with anxiety among the child labourers and school-going boys. In conclusion, it is likely that work in the carpet industry develops certain cognitive skills, but this development is restricted to a very narrow field. The relevance of the labourers' higher anxiety and internal locus of control compared to school group remains unclear. The methods used managed to differentiate the children both within and across samples. The concerns of the children reflected their environmental hardships.

Keywords: child development, cognitive skills, education, labour, well-being

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EPILOGUE

The inspiration to carry out a psychological study in Nepal arose in 1996 when I was doing a voluntary internship at the Senior Adviser's Office of the International Labour Organization's (ILO) in Kathmandu, Nepal. On my way to Nepal, I had the opportunity in the Geneva Headquarters of the ILO to become acquainted with three psychological consultancy documents commissioned by the organization. One of them, the Psycho-social Health Assessment procedure (compiled by Ennew, 1994) became an important motivator of this study. In fact, this research procedure was then first time used in field conditions, and it was done in collaboration with Professor Murari P. Regmi of Tribhuvan University, Kathmandu, Nepal. The initial funding came from the International Programme on the Elimination of Child Labour (ILO-IPEC), since then funding has been received from various foundations. This thesis has further evaluated and developed the procedure.

Jyväskylä, 5.12.2003
Esa Alaraudanjoki

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LIST OF ORIGINAL PUBLICATIONS

- 1 Alaraudanjoki, E. (2000). Child labour: A Multi-disciplinary review. In S. Leppänen & J. Kuortti (Eds.) *Inescapable horizon: culture and context* (pp. 157-202). Publications of the Research Unit for Contemporary Culture, 64, University of Jyväskylä. Jyväskylä: Gummerus Printing.
- 2 Alaraudanjoki, E., Regmi, M. P., Ahonen, T., Nurmi, J. - E., & Ruoppila, I. (2001). Cognitive Skills Among Nepalese Child Labourers, *International Journal of Psychology*, 36, 242 -250.
- 3 Alaraudanjoki, E., Regmi, M. P., Ahonen, T., & Ruoppila, I. (manuscript). Psychological Well-being Among Nepalese Child Labourers.

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1 INTRODUCTION

International efforts to regulate children's participation in working life have ended to several classifications of what constitutes harmful work in children's development. Identifications of possible hazardous fields of work have generally relied on political decisions based on the accumulated experiences of authorities, such as the ILO. The most recent classification of child labour is the *Worst Forms of Child Labour Convention 1999 (C 182, and its Recommendation No 190)*. The four basic categorizations of the worst forms of child labour are: (1) all forms of slavery or practices similar to slavery; (2) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; (3) the use, procuring or offering of a child for illicit activities; (4) work which, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety or moral of children. The fourth category is the topic of the present work.

Recommendation No 190 recommends that any definition of hazardous work should include: (1) work which exposes children to physical, psychological or sexual abuse; (2) work underground, underwater, at dangerous heights or in confined spaces; (3) work with dangerous machinery, equipment and tools or work involving the carrying heavy loads; (4) exposure to hazardous substances, agents or processes, or to temperatures, noise levels or vibrations damaging to health; (5) work for long hours, night work, and unreasonable confinement to the premises of the employer. Many of the above-mentioned descriptions can be applied to describe the working conditions of the children working in the factories in many developing countries. The term "*labourers*" is used throughout of this dissertation to describe the children working in factories. Some of these street children also work in conditions similar to those described above. However, the majority of them live their lives in less hazardous conditions.

Psychological research on child labour is scarce. Most of the studies on disadvantaged children deal with the more accessible groups of children, such as street children and agricultural workers. Consequently, the aim of the present study was to investigate the cognitive skills and psychological well-being of the Nepalese children working in carpet factories in the city of Kathmandu, and to

compare them to their peers who were enrolled in school.

Despite its social importance, when discussing child labour issues, I prefer the concept of *social disadvantage* (low education, low income, low employment levels, or unemployment; see Kagitçibasi, 1996) over the definition *children in particularly difficult circumstances* proposed by UNICEF (1986). Although both concepts refer to children whose suffering entails the highest level of risk to mental health, the latter refers particularly to children traumatized by war, or natural or technological disasters, and those living and working without parents. Furthermore, social disadvantage is also associated with lack of opportunity for developing effective social skills and parenting skills, which also serves as a negative mediator (Kagitçibasi, 1996). Hence, the concept of social disadvantage is useful when considering children who are affected by extreme poverty, severe malnutrition, forced prostitution, labour exploitation, or excessive family violence.

1.1 Psycho-social development among labouring children

There are two major perspectives that have traditionally been taken toward children's development. The *first*, macro-social, approach is used by economists, sociologists, and most public policy analysts who examine children's development in the context of these macro-social factors. For example, Smeeding's (1995) "Macro-Micro model for studying poverty children" consists of three input causes (physical-social environment, parent/family processes, and community/life processes) that contribute to the output effect (children's developmental status). Smeeding has applied his model specifically to understanding child growth in poverty families (Murray, 2001). The physical-social environment variables that are of interest in examining the life-context of Nepalese child labourers include the child's family structure, the economic well-being of the family, which is connected to employment situation and recentness of migration from rural areas to the city of Kathmandu, family social networks, services offered by public and private services, together with attitudes of adults towards children's participation in working life. The attitudes of adults are important in relation to the prevalence of the use of child labour and are affected by the presence of quality education and health services. The *second*, micro-behavioral, approach is adopted by developmental psychologists, educators, anthropologists, and pediatricians who measure children's well-being directly: cognitive, social, intellectual, educational, or other development measures for psychologists, educators, and anthropologists; and physical and mental health status for pediatricians (Smeeding, 1995).

Environmental or ecological theories describe the environments where human development occurs. These theories often include both macro and micro-level approaches. For example, Bronfenbrenner's (1979, 1994) Bioecological Model of environmental systems, nested within one another like

Chinese boxes, offers multilevel bases for human development and functioning. The four behaviors identified by Bronfenbrenner are microsystems (affects individual most intimately), mesosystem (constitutes “linkages and processes”, where individual is an active participant), exosystem (consisting of the processes operating between two or more environmental settings), and macro system or cultural milieu.

A number of domains of well-being have been identified in the international literature on the quality of life concept promoted by World Health Organization (WHOQOL Group, 1995; Skevington, Bradshaw, & Saxena, 1999). Chief among these are the domains of well-being, inter- and intrapersonal variability, personal context, a life-span perspective, holism, values, choices, and personal control, perception, self-image, and empowerment. The core dimensions of well-being include the desired states of emotional well-being, interpersonal relations, material well-being, personal development, physical well-being, self-determination, social inclusion, and rights.

In order to understand emotional well-being among child labourers, it is useful to understand the connection between having a sense of *control* over one's life and level of *anxiety*. In present study the level of anxiety was chosen to indicate psychological well-being. Many definitions of anxiety are based on biological conceptualizations, such as Chorpita and Barlow's (1998), “a state of the conceptual or central nervous system characterized by activity of the behavioral inhibition system (BIS)”. Similarly, anxiety can be understood as a coherent emotional structure serving the adaptive purpose of preparation for future challenges or threat. Moreover, cognitive and psychological vulnerability are related to early experiences of uncontrollability (Barlow et al., 1996), and when combined with biological vulnerability and triggered by the stress of negative life-events, lead to clinical anxiety, and possibly later to depression (Barlow, 1991; De Souza et al., 1995). However, a good way to define anxiety is a feeling of helplessness or lack of control (external locus of control) or influence over situations in one's life. The “Revised Children's Manifest Anxiety Scale” by Reynolds and Richmond (1978, 1997) is widely used as a measure of anxiety in child populations. Consequently, one might assume that a disadvantaged environment and high number of risk factors should be reflected in a high level of anxiety among labouring children. To what extent they show a sense of more external control is less clear.

Control is broadly defined as the ability to personally influence events and outcomes in one's environment, principally those related to positive or negative reinforcement (Chorpita, 1998). This is the kind of control people suffering from anxiety often do not feel they have. Furthermore, interest in the dimension of control has a long history in psychology (e.g. Rotter, 1966). Nowicki and Strickland developed the first reliable and valid measure of locus of control in children, the Nowicki-Strickland Locus of Control Scale (1973). Locus of control is the perceived source of control over our behaviour. People with an internal locus of control believe they control their own destiny. They tend to be convinced that their own skill, ability and efforts determine the bulk of their life experiences. In contrast, people with external locus of control believe that their

lives are determined mainly by sources outside themselves – fate, chance, luck or powerful others.

The development of locus of control is associated with family style and resources, cultural stability and experiences with effort leading to reward. Many internals have grown up with families that modelled typical internal beliefs. These families emphasised effort, education, responsibility and thinking. Parents typically gave their children rewards they had promised them. In contrast, externals are typically associated with lower socio-economic status, because poor people have less control over their lives. Societies experiencing social unrest increase the expectancy of being out-of-control, so people in such societies become more external. As children grow older, they gain skills that give them more control over their environment. In support of this, psychological research has found that older children have more internal locus of control than younger children (Simons, Irwin, & Drinnin, 1987). Similarly, although people can be classified comparatively as internals or externals, chronological development within each individual generally proceeds in the direction of an internal locus control. As infants and children grow older they feel increasingly competent to control events in their lives. Consequently, they move from being more externally focused to a more internal locus (Bem, 1994; Burger, 1993).

The well-being and development of children who live in unprivileged life conditions, mainly in developing countries, have attracted some interest among developmental psychologists. Table 1 summarizes the relevant research on the psycho-social development of street children and rural domestic workers, and table 2 summarizes the findings concerning child labourer populations across the world.

Boidin (1995) identified several risk factors affecting the psycho-social and social development of child labourers. She asserts that low school attendance rates, fragmented and repetitive work, poor relations between child workers and employers, and the isolation and separation of the child from his or her family are the main risk factors affecting the development of such children. Furthermore, different forms of ill-treatment are typically perpetrated on the child worker: under-payment, poverty and debt, isolation, being treated as an object, and being without a future which supports the fulfillment of one's potential may severely diminish the chances for a child's optimal development.

On the other hand, other researchers have suggested that child labour may even have positive impacts on child development (Aptekar, 1989; Aptekar & Stoecklin, 1997; Engel, 1967; Morrow, 1992; Panter-Brick et al., 1996; Whiting & Whiting, 1975; Woodhead, 1998, 1999). For example, Woodhead (1998) argued that working children see their work as an inevitable and necessary part of growing up as well as a contribution to their future prospects and those of their family. In the classic study *Children of Six Cultures*, Beatrice and John Whiting (1975) found that chores in farming communities taught children responsibility and gave them a sense of worth and involvement in the needs of others. However, there might be a threshold after which developmental benefits diminish in comparison to the adversities of participation in working life (Larson & Verma, 1999; White, 1996). In addition, the value adults ascribe to children's participation

in working life affects how a child perceives his or her work, and this process is culturally mediated (Alaraudanjoki, 2000; Munroe et al., 1984).

1.2 Cognitive development among labouring children

Studies on the development of cognitive skills in working children have mainly focused on street children, showing that they seem to develop arithmetic skills that are on a par with or higher than those of children attending school (Alaraudanjoki et al., 2001; Carraher et al., 1987; De Abreau, & Bishop, 1993; Grando, 1988; Saxe, 1988). Carraher et al.'s (1985) results from their study of street vendors showed that thinking sustained by daily common sense can –in some subjects- be at a higher level than thinking out of context. Moreover, their results showed that real-life contexts produced better problem solving than that done with paper and pencil in a test situation.

The research on cognitive development among weaver populations includes a study of Zinacanteco weavers, Mexico, which investigated the *processes of generalization* (Childs & Greenfield, 1980), and subsequent studies on the *planning behavior* of Navajo, USA (Rogoff & Gauvain, 1984), and of the weavers Dioulas, Ivory Coast (Tanon, 1994; in the non-weaver group in the same study included some Senoufos). All these studies involved a setting where influences of formal education (schooling) were compared to those of informal education (weaving). The results of the first two studies did not support the idea of the generalization to new contexts of abilities acquired in weaving. However, the last mentioned study demonstrated that Dioula weaving activity not only fostered the development of cognitive processes, such as planning, but also facilitated the generalization of control procedures to a new task (Tanon, 1994). Furthermore, Khan (1993) investigated the *use of strategies* by adult Kashmiri weavers in interpreting weaving instructions. This study showed that the weavers use a “least effort” strategy when adopting a mediational system, i.e. scripts, in execution of a skill which can be seen as an instance of practical thinking. The script is a unique writing system using signs to represent numbers and colors specifying the number of knots to be woven in each color.

The question of the differences between cognition in school and cognition at work relates most obviously to the ways in which teaching occurs. By contrast to the teaching of labouring children, teaching in schools is characteristically set apart from everyday life contexts and is the responsibility of teachers who must cover, with a high degree of systematization, certain content explicitly set on in the curriculum. Instruction in school is mainly verbal, with the presentation of general principles that are deemed important for their own sake rather than for their relevance in achieving practical social goals. In contrast, learning outside of school usually takes the form of an apprenticeship embedded in the activities of daily life. The learner develops knowledge and skills through participation in socially relevant activities. More skilled participants may help, but there is no

systematic curriculum to be followed and little verbal explanation. Instead, demonstration, observation, and imitation are thought to be ways of learning (Greenfield & Lave, 1982).

In the domain of the cognitive development of labouring children a topic of interest is whether transfer or generalization from a specific skill to other activities occurs. The debate on whether *transfer* of domain-specific skills or knowledge to new situations, or *generalization* (i.e., when a piece of knowledge or skill from one activity can be used in another activity) has raged over the years (see Segall et al., 1999). Its importance for the present research lies in the question of whether knowledge acquired in doing work, for example in weaving-related tasks, has any importance for other activities. School is said to promote generalizable procedures and knowledge, at least in some circumstances, while culture-specific skills are not considered to support applications across domains or in unfamiliar situations (Berry & Bennet, 1991; Dasen, 1987; Greenfield & Lave, 1982; Hatano, 1982; Rogoff & Gauvain, 1984; Scribner & Cole, 1981).

On the one hand, some empirical studies have questioned whether specific skills learned in everyday-life contexts can have a transfer effect on other learning situations (Nunes, 1993; Scribner & Cole, 1981). For example, the mathematical skills of unschooled children and those working in the market found expression only in the activities they performed in day-to-day life (e.g., counting the money required for a drink). Transfer of these skills to formal mathematical situations seems to be doubtful (Carragher, 1991; Saxe, 1991). On the other hand, research on everyday cognition shows that individuals who perform poorly in laboratory tasks, IQ tests, or school assignments may use, in their everyday, out-of-school activities, intellectual skills thought to be lacking. This suggests that failure in school need not imply an inherent inability to understand (Schliemann, Carragher, & Ceci, 1997).

Conceptual knowledge, as opposed to rule-bound procedural knowledge, supports transfer across situations (Guberman & Greenfield, 1991; Hatano, 1982; Hiebert & Lefevre, 1986; Schliemann & Magalhães, 1990). The study among Ivory Coast weavers showed that weavers could transfer procedural knowledge (Tanon, 1994), but that this transfer is of limited influence if not supported by conceptual knowledge (Chi & Greeno, 1987; Dasen, 1987; Hatano, 1982). Moreover, transfer is more likely to occur among subjects who have had some school experience (Schliemann & Magalhães, 1990). For example, the weavers who had been to school and who combined both modes of education achieved greater success in planning tasks, as they were more efficient planners than the weavers who had not been to school. This confirms the positive impact of a mixed type of education, which is promoted in some developing countries. The central factors contributing to transfer of planning skills are (1) transfer of control procedures, (2) the link to novel contexts, (3) the importance of economic ties which enhance the generalization process, and (4) training methods consisting of both the scaffolding and trial-and-error technique (Tanon, 1994). One aim of the present dissertation was to examine the cognitive development of labouring children and the psychological well-being of these children.

1.3 Psychological well-being among labouring children

The psychological well-being of socially disadvantaged children has mainly been approached from *risk-factor* (Rutter, 1987; Werner, 1989), *stress* (Höfer & Strauss, 1997; McCubbin, et. al., 1998), and *resilience* perspectives (Boyden, 1999; Garmezy, 1993; Richmond & Beardslee, 1988; Rutter, 1987; Werner & Smith, 1982). Resilience refers to individuals having some measure of success despite their coming from situations where success is not predicted, or the ability “to spring back” (Garmezy, 1993, p. 129). In other words, resilience enables people to recover and return once again to patterns of adaptation and competence. Duncan (1996) differentiated between *manifest* resilience, which is related to social and academic competence, and *emotional* resilience which is related to levels of stress responses.

Little research has been done on the psychological well-being of labouring children. Studies of working children have mainly focused on street children, showing them, in Nepal, to have better mental health (Baker et al., 1996, 1997), and they have shown better nutritional status and taller stature than slum-dwelling children (Panter-Brick et al., 1996). In Colombia street children had positive self-esteem, and an internal locus of control (Felsman, 1981). Similarly, they demonstrated the Eriksonian developmental characteristics of initiative, industry, and positive identity (Felsman, 1981). Moreover, Aptekar (1988) concluded that the behavior of Colombian street children on the streets was rational and appropriate to their circumstances. Their mental health is not as bad as popularly believed. The matrifocal family structure that operates in the lower social classes encourages their children to be independent at an early age. By adolescence they have to rely either on their younger friends to support them or adopt a delinquent lifestyle. Overall, little has been done on psychological well-being among laboring children apart from street children and agricultural workers.

Previous research on working children’s psychological well-being is scarce and mostly cross-sectional. Recently, Panter-Brick (2002, p. 166) criticized research on street youth and children arguing that “a greater effort should be made to analyze more convincingly the reasons for variation in the life histories of individual children and to relate differences by age, gender, ethnicity, or social support to the range of structural constraints operating at the macro-level.” Das et al. (1992) revealed in an occupational health survey among weavers that some occupational hazards (cough, backache, joint pains) were more prevalent among the weaver than non-weaver group. No major occupational diseases were detected in their study. However, it is likely that work at a young age accompanied with poor nutrition status it leads to stunted growth (Gorman & Pollit, 1996; Panter-Brick, 1996). Some studies have suggested that working might “speed up” the process of developing more internal control beliefs (Aptekar, 1989; Felsman, 1981). The present study also included an effort to examine labouring children’s psychological well-being.

TABLE 1 Summary of Psychological Studies on Working Children

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Aptekar (1988)	56 Colombian boys	7-17, mean 11.60	Participant observation and three tests	Age	Bender, Kohs Block Design IQ Test, Human Figure Drawing	Children's behavior on the streets is explained as being rational and appropriate to their circumstances. Their mental health is not as bad as popularly believed. Matrifocal family structure in the lower social classes encourages their children to be independent at an early age. By the adolescence they have to either rely on their younger friends to support them or adopt a delinquent lifestyle.
Baker, Panter-Brick, & Todd (1996)	329 Nepali boys	9-15	Participant observation and two surveys	Age Group: Village (school), Urban (School), (Homeless), (Squatter).	Anthropometric and Demographic survey	This study evaluated the methods used in research with street children in Nepal; see Panter-Brick et al., below. Study emphasizes comparative, multidisciplinary, and emic perspective on the lives of the street children. When the research setting allows room for a process and change it may improve the life situations of the street children.
Carraher, Carraher & Schliemann (1985)	5 Brazilian, 1 girl and 4 boys	9-15	Piagetian clinical method and participant observation	Group	Informal and formal tests on mathematical problems	Results from street vendors showed that thinking sustained by daily common sense can be –in some subjects- at a higher level than thinking out of context. Moreover results showed that real-life context produced better problem solving than that with paper and pencil in a test situation.

(continues)

TABLE 1 (continues)

Dasen (1984)	Baoulé, Ivory Coast, rural.	8-9	Observational studies on time-use for work and play.	Sex	Work, play time	For Baoulé 60 % of day-time used for domestic chores, and 25 % for play (girls 13 % and boys 40 %). For Kenyan children (5-7) 50 % by boys and girls for working, and at age 10-11 girls could use only 2 % for play.
	Kenya, rural.	5-7 10-11				One of the major values of play is that it allows for a reversal of daily contingencies. Creating opportunity for reversals serves as a motor for psychological development. Play allows the child from release from tensions that arise from restrictions imposed by the environment.
Felsman (1981)	25 Colombian boys	5-16	Participant observation	Group	Invulnerability, Resilience	Results indicate that core group of children was "self-selecting population", i.e. that they unlike their average 5 siblings refused to accept hardship and deprivation at home. Internal and external factors together yield "resilience", "stress-resistance" or invulnerability".
Munroe, Munroe, & Shimmin (1984)	192 children (4 x 48): Kenyan, Belize, American Samoan, Nepali 89 fathers, 135 mothers	3-9 Ages 3, 5, 7, 9	Participant observation, Individual time budgets. Individual time budgets, and work scores	Group	Level of work, i.e. proportion of all observations on which subjects were found to be engaged in work activity.	The results suggests, in line with Whiting & Whiting (1975), that the behavior clusters "nurturant/responsible" and sociable/intimate", appear to characterize well the social behavior of the more versus the less hardworking children.

(continues)

TABLE 1 (continues)

Panter- Brick, Baker & Todd (1996)	307 Nepali boys	6-14	Participant observation and two surveys	Age Group: Village (school), Urban (Homeless), (Squatter), (School).	Anthropometric and Demographic survey	<i>First</i> , homeless, i.e. street children, showed fewer signs of impaired growth than either the squatter or village boys, both of whom lived at home with their parents. <i>Second</i> , the duration of street life in Kathmandu had no effect on either levels of stunting or wasting. Homeless boys are able to maintain growth despite a lack of permanent shelter and parental care. Alternatively, the less successful children may leave the streets (to work in the carpet industry and teashops, through returning home or premature death). <i>Third</i> , the homeless boys who had been living on the streets for less than one year were taller for age than village controls.
Saxe (1988)	60 Brazilian 23 street vendors, 20 urban and 17 rural non-vendors	10-12	Three mathematical problems	Group	Representation of large numerical values, arithmetical operations on currency values, and ratio comparisons	Vendors and nonvendors alike had developed nonstandard means to represent large numerical values. Most vendors, in contrast to nonvendors, had developed adequate strategies to solve arithmetical and ratio problems involving large numerical values. In sum, the children construct novel understandings as they address problems that emerge in their everyday cultural practices. Moreover, participation in commercial transactions seems to influence their developing procedures to accomplish arithmetic on bill values.

(continues)

TABLE 1 (continues)

Whiting & Whiting (1975)	134 (50% boys and 50% girls) Okinawa, Philippines, Indian, Kenyan, Mexican, US American	3-11 (3-6, 7-11)	Behavior observations	Age, Sex	12 acts: Seeks (S) help, S attention, S dominance, Suggests responsibility, Offers (O) support, O help, Acts sociably, Touches, Reprimands, Assaults sociably (horseplay), Assaults, Symbolic aggression (insults)	The results emphasized the feeling of responsibility, sense of worth and involvement in the needs of others that develops when children are helping their parents, as well as a sense of belonging to the community. The increase in pro-social behavior between ages 3 and 11 reflects what Kohlberg (1969) has labeled conventional moral reasoning. Girls are more intimate-dependent than boys in 3-6 age group. Girls are also more nurturant in 7-11 age group. Boys tend to be more dominant-dependent and are significantly more aggressive.
Woodhead (1998)	72 Bangladesh, 42 Ethiopians, 81 Philippines, 106 Central Americans (El Salvador, Guatemala, Nicaragua)	10-14	Children's Perspectives Protocol	Group	Children's perspectives	Out of 7 "activities" two were included in this study: Activity 4 "talk about combining work with school"; Activity 5 "which work is best?" Children see their work as an inevitable and necessary part at growing up, as a contribution to their family and their future prospects. They see maintaining social relationships and self-esteem as important. Today's working children seek respect and support, not condemnation or harassment.

TABLE 2 Summary of Psychological Studies on Child Labourers

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Childs & Greenfield (1980)	43 Mayan Zinacanteco, Mexican girls (no school weavers) and boys (school and non-school)	13-18	4 tasks: Three tasks involving manipulation of patterns and colors. Fourth task comprising models drawn on paper from which subject had to select the one which shows pattern continuation by multiple-choice format.	Sex, Type of education: formal vs. Informal	Processes of generalization	Weaving develops the abilities needed for its practice, but does not support the generalization of these abilities to new contexts.
Das, Schukla & Öry (1992)	260 Indians (200 weavers and 60 non-weaver workers)	3-27 Weavers: <9.9 40,5%, 10-19.9 34%, >20 22%, na 3,5%	Occupational Health Check	Age, Socio-economic status	Three questionnaires: Physical examination, Peak Expiratory Flow Rate, Referrals	The occupational health survey revealed some occupational hazards (cough, backache, joint pains) which were more prevalent among weaver than in non-weaver group. However, no major occupational diseases were detected. Occupational health proved to be an effective entry point and instigator of action-oriented programs to improve the working conditions and health of labourers in the informal sector.

(continues)

TABLE 2 (continues)

Khan (1993)	10 Kashmir, Indian weavers	Adults	Participant observation	Work-experience	Detailed description of the learning and use of the script as a tool in weaving of patterns	In Kashmir, the weavers use “least effort” strategy while adopting a mediational system, i.e. scripts, in execution of a skill, which can be seen as an instance of practical thinking. The script is a unique writing system using signs to represent numbers and colors specifying the number of knots to be woven in each color.
Rogoff & Gauvain (1984)	79 Navajo, USA, women	16-75	4 tasks: Three tasks involving manipulation of patterns and colors. Fourth task comprising models drawn on paper from which subject had to select the one which shows pattern continuation by multiple-choice format.	Type of education: formal vs. Informal (weaving)	Processes of generalization	Knowledge acquired within a certain context can not be transferred to other contexts. Moreover, study demonstrates that contextualized skills such as weaving remain tied to practice. Therefore, one can observe little transfer of these skills.
Tanon (1994)	110 Ivory Coastian boys (56 Dioula weavers; 22 Dioula and 22 Senoufos non-weavers)	13-58	Participatory analyses of the processes in two tasks: The Clothes and the Taxi Van.	Ethnic group, Koranic Schooling, Age, Education formal vs. Informal, Raven’s Matrices.	Planning skills	This study demonstrates the importance of informal education on planning abilities and suggests combining both modes of education in developing countries where formal schooling faces a challenging situation in terms of the availability of quality education and resources.

2 AIMS OF THE STUDIES

This dissertation consists of three studies. The *first* study examined the following questions: (1) how does the value of children's participation in working life differ in the South (in Nepal) compared to North? (2) What transformation takes place in parental values towards children's participation in working life with modernization and socio-economic development? (3) How is the issue of child labour typically treated in the research contexts of economic, anthropological, sociological, educational, psychological sciences, and in the institutional research contexts?

The *second* study examined the following questions: (1) To what extent do the children who work in the carpet industry in Kathmandu differ in their cognitive skills from their peers who attend school? (2) How do environmental factors, i.e. lack of schooling and working at a young age, affect the development of the different groups of children in this study?

The *third* study examined the following questions: (1) To what extent do children who work in the carpet factories differ from their peers at school in their levels of anxiety, internality of their control beliefs, and current problems? (2) To what extent is the well-being of these different groups of children associated with their control beliefs and current problems?

The *fourth* area of interest was to examine following questions: (1) To what extent is gender associated with cognitive skills and psychological well-being? (2) To what extent do the overall associations between the cognitive skills and psychological well-being lead to a new understanding on subgroups?

3 CONTEXT – THE NEPALESE LIVING AND WORKING ENVIRONMENT

The international community funds more than 60% of Nepal's development budget and more than 28% of the country's total budgetary expenditures. Agriculture is the mainstay of the economy, providing livelihood for over 80% of the population and accounts for 40% of Gross National Product (GNP). Textile and carpet production accounts for about 80% of foreign exchange earnings. Thus the role of the carpet industry as an employer outside of the agricultural sector is significant. Tourism is another source of foreign exchange (CIA, 2003). Carpet industry is mainly concentrated in the capital city of Kathmandu. Estimates of the number of children working in Nepal's carpet industry are vague and reflect the source of information. For example, Maskey (2000), General Secretary of the Central Carpet Industries Association (CCIA), stated that around 10 000 children are currently working in the industry. He is keen to point out that all members of the CCIA are at least aware of the child labour Conventions. In his opinion child labour is mainly a problem of the unregistered small factories, which are owned by ex-carpet workers who are not members of the CCIA. Moreover, in "*An impact assessment study of the carpet children of Nepal*" contractors are referred as the main source of child labour recruitment (Shrestha, 1999). According to Shrestha's opinion the practice of using contractors, or "*Naike's*", is well known to employer and trade union leaders but nothing is done to curb this. Furthermore, the law enforcing agencies of the government were found to be reluctant to book factory owners and managers even when caught red-handed using child labour (Shrestha, 1999). The ILO has been working with different NGOs on this matter in Nepal since 1995 when the ILO's International Programme on the Elimination of Child labour (IPEC) was set up in Nepal.

The weaving industry in South-Asia has been studied in India (Das et al., 1992; Mishra & Tripathi, 1996). The occupational hazards found among Indian weavers included a persistent cough with expectoration, backache, the common cold, and joint pains (Das et al., 1992). In India, the weaving of carpets is mainly confined to the countryside, whereas manufacturing in Nepal is concentrated in

urban factory settings. Moreover, working conditions in the factories further increase the number of risk factors present during children's early development. The health hazards of the carpet factories include the following: bad ventilation of working areas in which wool fluff is present in large quantities, insufficient lighting, inadequate toilet facilities, ergonomic risks due to repetitive work tasks, and static working positions (Alaraudanjoki, 2000). Hazardous working conditions such as these in the carpet industries may thus cause boredom and dullness in a child - possibly leading to delayed intellectual development. Thus, social disadvantage in this study mainly refers to familial poverty seen in poor working conditions and lack of formal education.

There are various stages in the process of manufacturing a Nepalese carpet: coloring the wool, spinning the woolen reels, and the weaving, cutting and washing of the carpet. Males (boys) are delegated more independent tasks, but they also do weaving. Women (girls) mainly participate in the spinning of the woolen reels and weaving. Carpet manufacturing came to Nepal in 1959 when the Tibetan refugees started a factory on the refugee campuses. The smallest factories consist of "garages" containing two to four up-right looms. At the other end of the scale are also big factories employing 200 workers. Weavers reproduce a repertoire of traditional patterns but play no role in the changes or innovations that may be introduced. A typical Nepali carpet is less intricate in comparison than, for example, an Indian or Pakistani Kashmir carpet.

In Nepal, the basic human needs of most children are not being met (UNDP, 1998; UNICEF, 1998). Infant mortality rates are high (82/1,000). On average, slightly more than 71% of the population has access to safe water (urban 93%, rural 68%). Around 40% of young children growing up in Nepal have not been fully vaccinated against polio, tuberculosis, DPT, or measles. With more than half of the adult population unable to read (41% literacy for males, 14% for females), only 52% of children reaching grade five, illiteracy rates are high.

Child work in Nepal is related to family poverty (Nag et al., 1978; Nieuwenhuys, 1994). This is true elsewhere in developing countries where children are required to work before or after school, thus participating in the economic activities of the family. Where a high infant mortality rate and difficult living conditions exist, families are culturally more inclined to adopt a pediatric (versus pedagogical) approach to parenthood (LeVine et al., 1994). Primary concern in the pediatric model is with the survival, health, and physical growth of the infant. Greenfield (1994) has criticized Levine et al.'s (1994) theory of "socialization for survival," stating that it does not hold for societies where scholarship has been part of society for a long time, as in Chinese and other Asian cultures. However, I would like to underline the potential of the theory by giving a functional explanation for some child-rearing practices in the Nepalese context. Furthermore, the fact that Nepalese middle classes aim to send their children overseas for education confounds Greenfield's generalization of an established scholarly culture in all Asian societies.

Nepalese children feel a strong sense of duty toward their parents, and they want to help their parents. Among the carpet-weaving population there are also migrant families who are adapting to their new environment and struggling

for existence. There are even children who have been either sold or given to a contractor as security for loans taken out by their parents. Such children are classified as bonded labour (ILO, 1998). Consequently, it is part of the normal growth process in Nepal for children to work in the home with their parents, whether or not they go to school. Moreover, Segall and Kagitçibasi (1997) have noted that work and household chores serve as a powerful and positive socialization practice.

On the one hand, then, there are families working in the carpet industries of Nepal who are using their children as an asset or who are introducing them to manual labour skills and preparing them for the future challenges as part of a socialization procedure. On the other hand, there are children working in the industry who work under bonded labour conditions and hence are in a kind of slavery. While the former children would benefit from a mixed type of education alongside working, the latter group of children ought to be identified and rehabilitated immediately.

4 METHODS

4.1 Participants

The samples of for Study II and Study III were collected in 1996-97 in collaboration with the Central Department of Psychology, Tribhuvan University, Nepal (Table 3 and Table 4). In Study II the *labourers* were divided into two groups: *beginners* and *working* children, see table 3. The school going children go to school. Ethnically, the children were from Buddhist populations such as the Lama, Tamang, Magar and Sherpa, and belonged to Tibeto-Burmese language group. Moreover, most of the children labouring in the carpet industries had migrated from the same area of Nepal where the school-going children were living, Nuwakot District, which lies some 70 km to the northwest of Kathmandu. Data from Nuwakot District was collected both from rural and urban areas. 90 per cent of the labourer children belonged to nuclear families and lived with their parents outside the factory premises. The remaining 10 per cent of the labourer children, who belonged to the poorest families, notably Tamangs, lived on the factory premises.

TABLE 3 Demographic Characteristics of Study II

Child Group	Age and Gender Groups					
	10 Years		11-12 Years		13-14 Years	
	Boys	Girls	Boys	Girls	Boys	Girls
Working children	5	8	12	7	15	14
Beginner children	6	4	8	5	3	3
School children	16	12	22	15	19	20

NOTE. N = 194: $n = 61$ for *working* children, 29 for *beginner* children, and 104 for *school* children. The length of work experience among the *working* children was two years or more, and among the *beginner* children less than 1 year. Thus, here 60 children from the carpet factories with 1 year of working experience were omitted in order to study the groups with shorter and longer work experience.

TABLE 4 Demographic Characteristics of the all Groups – Study III

Child Group	10 Years		11-12 Years		13-14 Years	
	Boys	Girls	Boys	Girls	Boys	Girls
Labourers	20	21	31	27	28	23
School children	16	12	22	15	19	20

NOTE. N = 254: $n = 150$ for *labouring* children, and 104 for *school* children. The length of work experience among the *labouring* children varied from less than one year to three years. The *labourers* include both the *working* and the *beginner* groups of children together with the children with a one year of work experience.

4.2 Assessment methods

The International Labour Organization (ILO) *Psycho-social Health Assessment* screening procedure compiled by Ennew (1994) consists of tests in three areas of psychological development, i.e. neurocognitive development, psychological well-being, and future orientation. The ILO screening tool was administered 1996-97 in Nepal in order to examine the possible adverse effects of work on carpet children. The screening tool will enable information to be collected quickly (2 ½ hours per subject), without the presence of a trained psychologist, as is often the situation in the developing countries. The basic assumption underlying the procedure is that it is not very interesting to compare child labourers cross-culturally because there are no international standards as to what is good emotional and intellectual functioning. Moreover, in the absence of suitable country-based norms for child workers there is a need for a control group of non-workers of the same socio-economic and ethnic status. The closest we can come is to compare working children with non-working children *within* a particular society, or to compare children who are working in especially hazardous industries with those who are not (Ennew, 1994).

Study I is a multi-disciplinary review of the literature. Study II investigates the cognitive skills of the children. Study III investigates the psychological well-being of the children, indexed by anxiety. The methods and basic statistics are summarized in Table 5.

The Bender Visual-motor Gestalt test

The Bender Visual-motor Gestalt test, hereafter *Bender* (Bender, 1938), was administered according to the standard procedure. The Koppitz Developmental Scoring System (Koppitz, 1975) was used in analyzing the Bender protocols. The scoring is based on 30 discrete items in the *developmental system* each of which is scored as present or absent. Each item belongs to one of four different categories of errors: distortion (10), rotation (8), integration of errors (9), and perseveration (3). The total *error score* equals the Total Developmental Score, which may be compared with age norms or an age-based percentile rank may be obtained. Persons above the age of 8 or 9 are expected to have few or no errors (Taylor,

Kaufman & Partenio, 1984). The internal consistency coefficients of the Bender error-types (Distortion, Integration, Perseveration, and Rotation) were at an acceptable level for all subjects; Cronbach's $\alpha = 0.76$.

WISC-R

The Wechsler Intelligence Scale for Children – Revised (1974) sub-tests of *Arithmetic* and *Digit Span* were used according to the standard procedure. The latest developments in working memory framework research (Baddeley, 1986; Baddeley, 2000; Baddeley & Hitch, 1974; for a review of working memory *tasks* see, Numminen, 2002, pp. 18-20). In Arithmetic reasoning the examiner presents the child with tasks of increasing difficulty. In Digit Span Forward (a measure of phonological loop) the examiner presents the child with a three- digit number, given at the rate of one digit per second. The child has to repeat the number. A second three-digit number is then presented. Next, two four-digit numbers are given and similarly scored. In Digit Span Backward (a measure of executive function), the child is instructed to repeat the presented sequence in reverse order. Cronbach's α for the Digit Span was at a high level (0.81).

Word Fluency test

In the Word Fluency test (Lezak, 1995) the child was asked to recall as many food items (vegetable and fruits) and animals as s/he could remember, within the space of one minute. The test involves motivation, retrieval and scanning the long-term memory (Nokes et al., 1992; Semil & Wiig, 1980). It is also reported to assess the executive functions and therefore also the functions of the frontal lobes (Lezak, 1995). In order to understand that a child has understood the procedure it is recommended that a warm-up round of instruction on things to drink is used. For example, "if I was to say things to wear, you could say, shoes, socks, shirt, pants, dress, jacket. Now tell me some things to drink". If child names four or more things to drink straight away, then examiner proceeds straight to the test items. The child is allowed 60 seconds to answer. Timing begins after the child has given his/her first response to each category. Scoring is done by recording the child's responses word for word on the score sheet. The total duration of test is approx. 2 minutes.

Anxiety

The level of anxiety was assessed by the "What I Think and Feel: Revised Children's Manifest Anxiety Scale, hereafter *Anxiety* (Reynolds & Richmond, 1978, 1997). It was administered by reading the statements aloud to the participants, whose answers were scored by the interviewer as yes/no responses. Cronbach's α for the 28 Anxiety scale items was at an acceptable level (0.78).

Locus of Control

The short version of the Nowicki-Strickland locus of control scale for children (Nowicki & Strickland, 1973), hereafter *NSLCS*, was administered by the interviewer reading the statements aloud to the subjects and scoring the

answers. The NSLCS, which is a measure developed for children in grades 3-12, is designed to yield a single measure of externality (the extent to which children have an external locus of control). It contains 40 questions with yes/no responses. In 24 items, "yes" is the external choice; the remaining 16 items have "no" as the external choice.

We selected 20 items, three intended for grades 7-12 (items 11, 12, 28 due to the age of the children in this study) and 17 items which were for all grades. In 7 items, "yes" is the external choice; the remaining 13 items have "no" as the external choice. Then, for the purpose of analysis the items were scored as follows: *zero* for the internal and *one* for the external locus of control. Cronbach's alpha for the total NSLCS items, 1 to 20, was at a high level (0.87).

Current problems

Current problems were measured by use of a 12-item test adapted by Ennew (1994; from Phillips, 1965). Out of the 12 items, the 8th was used in this study. In this item, the children were asked in an interview to respond to the following uncompleted sentence: 'My greatest problem is ...'. The first two authors analyzed these responses, and placed each answer in one of the following categories (examples in parenthesis): Human: work/school related ("To be a great man", "work that I can't do"/"exam", "walking with friends, going home"); Animal: real (when an animal is known to live in a child's environment, like "snake" or "goat"); Nature ("water problem"); Supernatural ("ghost in dream"); No problems; Human: familial ("take care of child", "if mother will scold"); Human: extra-familial ("study and home, leaving my study"; Poverty, money and food ("no food", "no money to buy clothes").

Testing procedure

Access to the working children was obtained through one of the ILO's Action Programmes, run by the National Society for the Protection of the Environment and Children (NASPEC). The data collection was performed in the Nepalese language by Professor Murari Prasad Regmi and four Nepalese final year MA psychology students, one woman and three men, from Tribhuvan University. The female student mainly collected the data on the girls. The data collection location for the children attending school was Nuwakot District as it became evident during the first 10 interviews, that this was where the majority of the working children came from. The methods were adapted to Nepalese conditions during an intensive week using the committee approach, i.e. items were discussed within the team and confirmation of the proper translation from English to the Nepali language was sought. The week also served as a training period for the students in the background theories and for administration of the Psycho-social Health Assessment procedure.

TABLE 5 Basic Statistics

Variables	Beginner (N=29)		Working (N=61)		School (N=104)		Labourers (N=150)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<i>Cognitive Skills</i>								
Arithmetic								
10 years	8.10 (n=10)	1.60	9.31 (n=13)	2.10	9.89 (n=28)	1.81		
11-12 years	9.85 (n=13)	2.58	9.63 (n=19)	1.80	11.03 (n=37)	2.88		
13-14 years	10 (n=6)	3.52	9 (n=29)	2.31	12.44 (n=39)	2.56		
Boys	9.71 (n=17)	2.93	9.88 (n=32)	2.14	10.96 (n=57)	2.66		
Girls	8.67 (n=12)	1.92	8.59 (n=29)	1.88	11.60 (n=47)	2.72		
Bender	12.21	5.44	9.84	5.66	6.06	4.08		
Digit Span Forward	5.24	1.60	6.10	2.22	6.98	2.45		
Digit Span Backward	5.52	2.28	6.11	2.26	5.16	3.47		
Word fluency	20.83	5.74	21.93	7.01	38.93	10.77		
<i>Psychological Well-being</i>								
Anxiety					12.35	4.39	14.02	5.56
Locus of Control					9.07	2.50	2.86	4.08

NOTE. The length of work experience among the *working* children was two years or more, and among the *beginner* children less than 1 year. *Labourers* refers to all children working in the factories.

The interviewer met the children at least once before the first of two sessions took place. The children working in the carpet factories were interviewed and tested during the time reserved for participation in non-formal education (NFE) classes either at their workplaces or at the Children's Rehabilitation Center run by the NGO and funded by the ILO. The school children were studied on the school premises. The average time used per child was 35 minutes for the assessment of cognitive skills, and 1 h 25 minutes for the test of psychological well-being; the total time used was 2 ½ hours.

The assessments thus took place either in the ILO's Rehabilitation Center in Kathmandu, where the children stayed on average for 45 days before being guided further, at the carpet factories during the non-formal education classes, or in the schools. The children working in the carpet industry did not have to

justify their participation in the assessment sessions to their employers since they were already enrolled in the NFE classes, where on average they had been for two months. The NFE curriculum consisted of very basic reading, writing and arithmetic training together with health education. In addition, the interviewers met the children at least once before they were assessed, and the assessment often occurred in open spaces where the child could maintain eye-contact with his or her peers from a distance. Pareek and Rao (1980) have found the latter procedure efficient in India as a way of reducing test anxiety, especially among rural populations. The purpose of the study was explained to the children and they gave their verbal consent. All of the children participated.

4.3 Statistical analysis

The primary method of data analysis was analysis of variance. For the semi-structured questionnaires chi-square tests was used. The Tukey test and t-test for Independent samples were used to analyze group differences. In addition to these methods, regression analysis was used in analyzing the relations of work and age to cognitive skills and psychological well-being. Moreover, the correlations between gender, cognitive skills, and psychological well-being were estimated. These associations will be reported in the discussion section of this dissertation. SPSS (version 8) was used in all statistics. The *raw scores* were used in the analyses of all tests.

5 ORIGINAL STUDIES

5.1 Study I - A Multi-disciplinary review of the literature

Aims

The study examined the following questions: (1) how does the value of children's participation in working life differ in the South (in Nepal) compared to North? (2) What transformation takes place in parental values towards children's participation in working life with modernization and socio-economic development? (3) How is the issue of child labour typically treated in the research contexts of economic, anthropological, sociological, educational, psychological sciences, and in the institutional research contexts?

Method

A review of the literature in the disciplines of economics, social-anthropology, sociology, education, and psychology was carried out in order to acquire an overview of the child labour issue. The review also included child labour in the institutional research context. The value accorded to children's participation in working life in Nepal, and generally in the South, was examined.

Results

The review of the multidisciplinary literature on child labour in context showed that (1) the value accorded to children's participation in working life in Southern contexts depends on the degree of socioeconomic development of the particular country in question. (2) It challenged the 'truism' of the modernization according to which collectivist values are transformed into individualistic Western values. Thus collectivist values tend to dominate despite socioeconomic development. In addition, as modernization proceeds along with the claimed socio-economic development, the question of child labour is affected by the increasing availability of both quality education and health services. These services have indirect effects in changing attitudes, mainly those of parents, towards children's participation in working life. (3) The regulation of children's

participation in working life involves the classification of what constitutes harmful work in children's development.

International efforts to identify possible hazardous fields of work have generally relied on political decisions based on the accumulation of experiences in the various activities (see ILO, 1999, Convention 182 "Worst forms of child labour"). The major problem in this task has been the lack of scientific research on the effects of work on working children. However, the international community needs to intervene in those areas which need no scientific research to confirm that they are potentially harmful for the child development, such as the areas of work defined in the "Worst forms of work" convention. Similarly, there is an obvious need to reduce the levels of malnutrition which have their own serious effect on human physical and intellectual development when accompanied by hard work.

5.2 Study II - Cognitive skills

Aims

The study examined the following questions: (1) To what extent do the children who work in the carpet industry in Kathmandu differ in their cognitive skills from their peers who attend school? (2) How do environmental factors, i.e. lack of schooling and working at a young age, affect the development of the different groups of children in this study?

Participants

The cognitive skills of 61 Nepalese 10-14-year-old *working* children with at least 2 years working experience were compared to two groups of children, *beginners* (n=29) with less than 1 year of working experience and a *school* group (n=104) matched for age and ethnic background (N=194).

Measurements

All the children were tested by the Bender test, WISC-R for Arithmetic, Digit Span, and the Word Fluency test.

Results

The main results showed that the school group was better in all the cognitive tests, except for Digit Span Backward. The results suggest that work in the carpet factories develops the verbal short-term memory and attention functions of the children (i.e. working memory) but lowers their visuo-constructive skills. The boys were better in Arithmetic skills than the girls when they were working. The selection effects could be seen in Bender and Verbal fluency tasks where belonging to the school group was associated with high performance, i.e. low Bender error and high Verbal fluency scores. The results suggested that the more the children's working experience, the worse their visuo-constructive skills (Bender and Digit Span Backward) and the higher their Digit Span Forward

scores. Thus, it is likely that work in the carpet industry develops certain cognitive functions such as attention and short-term memory skills, but that this development is restricted to a very narrow field.

5.3 Study III - psychological well-being

Aims

The study examined the following questions: (1) To what extent do children who work in the carpet factories differ from their peers at school in their levels of anxiety, internality of their control beliefs, and current problems? (2) To what extent is the well-being of these different groups of children associated with their control beliefs and current problems?

Participants

The well-being of 150 Nepalese 10-14-year-old *labouring* children with less than one to three years work experience was compared to that of *school* children (n=104) matched for age and ethnic background, (N=254).

Measurements

All the children were tested according to the Reynolds and Richmond Revised Children's Manifest Anxiety Scale, Nowicki-Strickland locus of control inventory, and Semi-structured Interview for Problems.

Results

The results showed that the psychological well-being of the *labouring* children was lower than that of the *school* children. The *labouring* children reported higher levels of anxiety compared to the *school* children. The *school-goers* group showed a less internal locus of control than did the *labouring* group. Thus, the *labouring* children had acquired life skills that gave them a sense of control over their lives. In addition, with age the children became more internal in their control beliefs. External locus of control was found to correlate with anxiety among the *labouring* children but not among the *school* children. In general, the *school* children reported more problems related to human relations at school, whereas, the *labouring* children's problems realistically reflected matters directly related to poverty, rather than human relations at work. The concerns of the children in this study reflected their environmental hardships and showed that the children seemed to be aware of their socio-economic situation.

5.4 Gender differences and overall associations

Gender differences

Aim

The aim was to study question: How does gender affects the associations between cognitive skills, anxiety, and locus of control within the school-going and the labourer children?

Participants

Two groups of Nepalese children (N=254, 10-14 years old) were studied. The *school* group consisted of 104 school-enrolled children (47 girls, 57 boys), and the *labouring* group were 150 children (71 girls, 79 boys) working in the carpet industry.

Method

In order to investigate the extent to which gender would affect the cognitive skills and psychological well-being of the *school* children (Table 6) and the *labouring* children (Table 7) a within-group analysis of the correlations between gender, cognitive skills, anxiety, and locus of control was carried out.

Results

The results for the *school* children suggest, first, that girls who are still at school after age nine are well functioning, and likely to have more internal control beliefs, which was also positively associated with Arithmetic reasoning. In addition, among the schoolgirls there was a positive association between arithmetic skills and good visuo-constructive skills (i.e. low Bender error scores). Second, the results suggest that among the schoolboys externality is positively associated with executive functions (Digit Span Backward), and Anxiety. The latter finding is as expected, but the former is not. However, interpretation of the fact that executive function (Digit Span Backward) among the schoolboys was positively associated with the Bender test is more problematic, since the Bender is an error score and thought solely to measure visuo-constructive skills.

By comparison, the results for the *labourers* suggest a positive association between the executive functions, i.e. of working memory, and the Arithmetic task among the boys, while among the girls lower anxiety was positively associated with better performance in word fluency. One interpretation of these findings might be that labouring boys are given more independent tasks in the various stages of the carpet manufacturing process, and that the environment of the girl labourers, if they perceive it as less anxiety arousing, allows them in the course of interacting and working to develop their verbal skills. The girls work more often as a group doing the work of weaving the carpet.

TABLE 6 Correlations Between Subscales for Schoolgirls (above Diagonal, n = 50) and Schoolboys (below Diagonal, n = 57)

Subscale	1	2	3	4	5	6	7
1. Bender			-.53***	-.15	-.16+	.26	.02
		-.49***++					
2. Arithmetic	-.01+		.20	.48**	.55***	.03	-.36*+
	+						
3. Word fluency	-.38**	-.12		-.29*	-.48**	-.22	.11
4. DS Forward	.06	.39**	.39**		.87***	.35*	-.10+
5. DS Backward	.27*+	.43**	-.38**	.81***		.28	-.14+
6. Anxiety	-.03	-.05	.05	.26	.24		-.01+
7. Locus of Control	-.06	.01+	-.01	.27+	.30*+	.32*+	

NOTE. "DS" refers to Digit Span. Pearson correlation significance level between subscales, * < .05, ** < .01, *** < .001. Fisher-Z correlation significance between groups on subscales, + < .05, ++ < .01, +++ < .001.

TABLE 7 Correlations Between Subscales for Labouring Girls (above Diagonal, n = 71) and Boys (below Diagonal, n = 79)

Subscale	1	2	3	4	5	6	7
1. Bender		-.39**	-.08	-.22	-.19	-.11	-.18
2. Arithmetic	-.30**		.24*	.18	.01 +	-.21	.10
3. Word fluency	-.21	.22*		.00	-.18	-.24* +	.25*
4. DS Forward	-.11	.28*	.08		.73***	.16	.05
5. DS Backward	-.12	.37** +	-.26*	.62***		.14	.02
6. Anxiety	.03	-.04	.08 +	.13	-.03		.34**
7. Locus of Control	-.07	.04	.44***	.07	-.21	.24*	

NOTE. "DS" refers to Digit Span. Pearson correlation significance level between subscales, * < .05, ** < .01, *** < .001. Fisher-Z correlation significance between groups on subscales, + < .05, ++ < .01, +++ < .001.

Overall associations

Aim

The aim was to analyze the question: How are cognitive skills, anxiety, and locus of control associated within different subgroups?

Participants

The four groups of children studied consists of Beginner, n=29, Working, n=61, School, n=104, and Labouring, n=79, groups.

Method

The within group Pearson correlation significance level between subscales were calculated.

Results

Tables 8 and 9 show that, first, that in all groups – except Beginner - there was a positive association between anxiety and Digit Span Forward (i.e. Phonological loop). Secondly, in the Working and School groups there were also positive associations between Anxiety and Digit Span Backward (i.e. Central executive). Thirdly, in the School group Anxiety was negatively associated with Word fluency. A Lower level of Anxiety implies better performance in Word fluency. Overall, among the Labouring children external locus of control showed a positive association with both Word fluency and Arithmetic reasoning, which are somewhat surprising findings. Similarly, among the Labouring children externality was also associated with fewer Bender errors, i.e. with better visuoconstructive skills. In addition, the association table for the total sample (N=254) was omitted since it did not bring any new information to light and was in part difficult to interpret, probably due to group level differences in several items. However, the table is available from author on request.

TABLE 8 Correlations Between Subscales for Beginners (above Diagonal, n = 29) and Working group (below Diagonal, n = 61)

Subscale	1	2	3	4	5	6	7
1. Bender		-.39*	-.24	-.05	-.02	.29	.03
2. Arithmetic	-.33**		.27	.13	.28	-.17	.26
3. Word fluency	-.08	.34**		.19	-.32	-.37*	-.25
4. DS Forward	-.16	.32*	.18		.33	.07	-.06
5. DS Backward	-.22	.23	.02	.74***		.06	.43*
6. Anxiety	-.19	.07	-.12	.32*	.24		-.05
7. Locus of Control	-.45***	.29*	.07	.44***	.46***	.28*	

NOTE. "DS" refers to Digit Span. Pearson correlation significance level between subscales, * < .05, ** < .01, *** < .001.

TABLE 9 Correlations Between Subscales for School (above diagonal, n = 104) and Labouring groups (below Diagonal, n = 150)

Subscale	1	2	3	4	5	6	7
1. Bender		-.20*	-.30**	-.02	.11	.04	.10
2. Arithmetic	-.35***		-.03	.43***	.48***	.06	-.19
3. Word fluency	-.16	.24**		-.35***	-.42***	-.02	.01
4. DS Forward	-.16*	.23**	.04		.83***	.30**	.10
5. DS Backward	-.15	.21*	-.22**	.68***		.26*	.09
6. Anxiety	-.04	-.10	-.05	.15	.05		.18
7. Locus of Control	-.10	.04	.33***	.06	-.08	.28**	

NOTE. "DS" refers to Digit Span. Pearson correlation significance level between subscales, * < .05, ** < .01, *** < .001.

6 DISCUSSION

The aim of this thesis was to investigate the life-contexts, cognitive skills and psychological well-being of children working in carpet factories in the city of Kathmandu. A contextual review of the literature suggested that child labour is a social and to some degree also a cultural problem. The “cultural problem” presumably arises from the different values assigned to children’s participation in working life and from the prevalence of work in childhood in different cultures. The first empirical study showed that, although labouring children performed poorer in most cognitive tasks compared with school children, their work in the carpet industry seems to develop certain cognitive skills, such as attention and short term memory functions (working memory). The second empirical study showed that the psychological well-being of the labouring children was lower than that of school-going children. The labouring children reported higher levels of anxiety in comparison to the school children. The school children showed a less internal locus of control than did the labourers.

6.1 Child labour in context

The aims of the review of the literature were firstly, to compare the value accorded to children’s participation in working life in the South (in Nepal) and North; secondly, to assess the possible transformation of the values of parents towards their children’s participation in working life alongside modernization and socio-economic development; and thirdly, to examine the issue of child labour in the sociological, educational, economic, psychological, and institutional research contexts.

The findings of the multidisciplinary review showed, first, that the value accorded to children’s participation in working life in Southern contexts depends on the degree of socioeconomic development of the particular country in question. Second, it challenged the ‘truism’ of the modernization theory regarding the transformation of collectivist values towards individualistic

Western values (see Kagitçibasi, 1996). Thus collectivist values were found to dominate despite socioeconomic development. In addition, as modernization proceeds along with the claimed socio-economic development, the question of child labour is affected by the increasing availability of both quality education and health services. These services have indirect effects in changing attitudes, mainly those of parents, towards children's participation in working life. Third, the regulation of children's participation in working life involves the classification of what constitutes harmful work in children's development.

International efforts to identify possible hazardous types of work have generally relied on political decisions based on accumulated experiences in the various activities (see ILO, 1999, Convention 182 "Worst forms of child labour"). The major problem in this endeavor has been the lack of scientific research on the effects of work on labouring children. However, the international community needs to intervene in those areas which need no scientific research to confirm that they are potentially harmful for the child development, such as the areas of work defined in the "Worst forms of child labour" convention (C 182, and its Recommendations No 190). The international community should also seek ways to reduce the levels of malnutrition which have their own serious consequences for human development, e.g. in hindering physical and intellectual development. Thus, child labour is a social problem arising out of family poverty. Moreover, children form a cheap, usually obedient, labour force not recognized by trade-unions (Rodgers & Standing, 1981).

6.2 Cognitive skills and psychological well-being

The first empirical study, Study II, examined two questions: To what extent do the children who work in the carpet industry differ from the school-going children in their cognitive skills? How do environmental factors, i. e. lack of schooling and working at a young age, affect the development of the groups of children in this study?

The results on cognitive skills showed that the school group performed better in all the cognitive tests, except for Digit Span Backwards (DB) in which they did not differ from the labouring groups. Second, the research showed no major differences in cognitive skills between the beginner and working groups. However, work experience as such was related to improving Digit Span Forward (DF) scores and reduction in visuo-constructive skills. This suggests that work in the carpet factories may develop the attention and verbal short-term memory (working memory) functions of the children, but lowers their visuo-constructive skills. Third, the research showed that the boys were better than the girls in arithmetic skills when they had long working experience. In conclusion, it is likely that work in the carpet industry develops certain cognitive skills, such as attention and short term memory functions, but this development is restricted to a very narrow field.

These results suggest that learning occurs in out-of-school, informal education and in everyday life settings. Furthermore, it is likely that familiarity with the format of the tasks which were included in the test battery enhanced the performance of the school children. If transfer of specific skills or generalization from one activity to another did occur, it did so for both the school and labouring children in arithmetic reasoning, and for the school group in the verbal fluency task. In the Arithmetic task, both groups not only understood the verbally given tasks, but also managed to do the mathematical reasoning outside of the original context where they had learned the skill. Moreover, in the verbal fluency task the school children were able to produce food and animal items well despite the time-limit of one minute, a skill which is not often required in Nepalese schools which frequently resort to rote learning.

The previous research on weaving populations has shown, that among Zinacanteco weavers, in Mexico, weaving develops the abilities needed for its practice, but does not support the generalization of these abilities to new contexts (Childs & Greenfield, 1980). The investigation by Rogoff and Gauvain (1984) on Navajo weavers, USA, showed that knowledge acquired within a certain context can not be transferred to other contexts. Moreover, the same study demonstrated that contextualized skills such as weaving remain tied to practice. Therefore, one can observe little transfer of these skills (Rogoff & Gauvain, 1984). The results of these two studies did not support the hypothesis that the abilities acquired in weaving are generalized to new contexts. However, Tanon's (1994) study among Dioula weavers (in the Ivory Coast), demonstrated that weaving activity not only fosters the development of cognitive processes, such as planning, but also facilitates the generalization of control procedures to a new task (Tanon, 1994). Her study on weavers demonstrates the importance of informal education on planning abilities and suggests that both modes of education be combined in developing countries where formal schooling faces a challenging situation in terms of the availability of quality education and resources. In addition, the research by Khan (1993), in the Indian state of Kashmir, showed that the weavers use a "least effort" strategy when adopting a mediational system, i.e. scripts, in the execution of a skill, which can be seen as an instance of practical thinking.

Empirical studies are rather consistent in pointing out how context-related the performance of cognitive tasks of different types is (Schliemann et al., 1997). Whenever psychological tests are used with disadvantaged child populations, it is important to know not only the cultural biases affecting tests and testing but also the children's age. Moreover, the tests have to be as independent of reading skills as possible (Aptekar & Stöecklin, 1997). In addition, when studying the cognitive development of disadvantaged children, one should control the familiarity of the situation where the investigation takes place, and the tests or tasks to be performed ought to be meaningful to all subjects. For example, Serpell (1979) reversed the usual familiarity bias in a study of European and Zambian children and found their Scottish sample to have a lower level of performance of unfamiliar tasks. Brislin et al. (1973, p. 111) argued that "it makes little sense to go through various technical contortions in adapting an American

or British test so that it 'fits' the target culture. The mere existence of a famous test, such as the Wechsler series or the Stanford-Binet, does not mean that it must be used, or that it somehow automatically qualifies". In addition, Tyler et al. (1992) argued that adaptation of tests can only be adequately dealt with by local researchers, who speak the same language as the respondents and have real insight, and ideally experiences, of their daily lives. In this thesis the etic approach (see Berry, Poortinga, Segall & Dasen, 1992) was used and the methods were adapted to Nepali conditions, before the first data collection took place, by Professor Regmi's team using a committee approach over one intensive week. Thus, the requirement of Tyler et al.'s was fulfilled in this study. Moreover, we adapted a non-ethnocentric approach to data-analyzes and used raw scores in the comparisons.

Psychological well-being

The second empirical study examined two questions: First, to what extent do children who work in the carpet factories differ from their peers at school in their levels of anxiety, internality of their control beliefs, and current problems? Second, to what extent would the well-being of the two groups of children be differently associated with their control beliefs and current problems?

The results showed that the psychological well-being of the labouring children was lower than that of school-going children. The labouring children reported higher levels of anxiety compared to the school children. Greenfield and Lave (1979, 1982) found among weavers in Mexico that when errors in weaving caused economic harm, an emphasis was put on errorless learning, a situation which may arouse anxiety among children. The school-children showed a less internal locus of control than the labouring children. Thus, the labouring children had acquired life skills that gave them a sense of control over their lives. In addition, with age the children's control beliefs became more internal. An external locus of control was found to correlate with anxiety among the child labourers but not among the school children. The school children reported more problems related to human relations at schools, whereas the labouring children's problems realistically reflected matters directly related to poverty rather than human relations at work. The concerns of children in this study reflected their environmental hardships and showed that children seemed to be aware of their socio-economic situation.

The stronger internal locus of control might in part be explained by the increased level of manual skill acquired through working, by the more restricted environment which factories offer, and perhaps earlier maturation in terms of the household economy. However, the sense of support from the extended family might have been diminished, especially when a child was not working with his or her family. Thus, the sense of internal locus of control which originates in the self is enhanced. In comparison, some social science researchers have found among street children that their peers can provide an important support group enhancing the children's survival skills (Ennew, 1994), thus leading to a higher internal locus of control (see Aptekar & Stöecklin, 1997).

The source of an individual's internal locus of control may not be restricted to the self, as Rotter (1966) originally suggested, but it is possible that there are multiple sources of internal control (Chia et al., 1998). According Chia's et al. (1998), a sense of control can be acquired through the processes of development of an indirect internal locus of control, which accounts for the extended family and friendship network. Thus, in collectivist societies an individual's internal locus of control may have multiple sources. Therefore, the more indirect (external) locus of control found in the school children in this study can be interpreted as an attempt to gain a sense of control through the extended family. In addition, the school environment in Nepal offers a structure which does not require much independent thinking.

Overall, the results suggest that working in the carpet factories has some adverse effects on psycho-social development, particularly in the cognitive domain. Also within the psychological well-being domain labourers had a higher anxiety level, but we have to notice that the anxiety levels of both groups were at a low level on Reynolds and Richmond's (1978, 1997) scale (Alaraudanjoki et al., manuscript). For this reason the clinical relevance of these findings remains unclear. Moreover, the labouring children had acquired life-skills that gave them a sense of control over their lives, as was shown in their more internal locus of control. Participation in working life belongs to the normal Nepalese growth process, and work in the carpet factories is one of the opportunities available to children. In addition, the results are difficult to compare cross-culturally since different cultural contexts may value children's economic contributions to their families' income and subsistence differently. Moreover, various jobs require different skills and the skills taught at school are not necessarily those needed in life. However, although children clearly benefit from schooling (Alaraudanjoki et al., 2001) we would argue that quality education needs to be present in order to assure parents of the benefits of sending their offspring for formal education. Hence, while lack of education is one risk factor in children's development, it is to be said that working develops some skills that could later be upgraded to a required level (Alaraudanjoki et al., 2001).

Gender differences

The results for the *school* children suggest, first, that girls who are still at school after age nine are well functioning, and likely to have more internal control beliefs, which was also positively associated with Arithmetic reasoning. In addition, among the schoolgirls there was a positive association between arithmetic skills and good visuo-constructive skills (i.e. low Bender error scores). Secondly, the results suggest that among the schoolboys externality is positively associated with executive functions (Digit Span Backward), and Anxiety. The latter finding is as expected, but the former is not. However, interpretation of the fact that executive function (Digit Span Backward) among the schoolboys was positively associated with the Bender test is more problematic, since the Bender is an error score and thought solely to measure visuo-constructive skills.

By comparison, the results for the *labourers* suggest a positive association between the executive functions, i.e. of working memory, and the Arithmetic task among the boys, while among the girls lower anxiety was positively associated with better performance in word fluency. One interpretation of these findings might be that labouring boys are given more independent tasks in the various stages of the carpet manufacturing process, and that the environment of the girl labourers, if they perceive it as less anxiety-arousing, allows them in the course of interacting and working to develop their verbal skills. The girls work more often as a group doing the work of weaving the carpet.

6.3 Methodological problems

Some of the problems of studies of this type include the inaccessibility and invisibility of working children, cultural aspects in relation to the methods used, and constraints of both time and resources. In contrast to street children, it is relatively difficult to study children working in more hazardous industries, due to resistance from employers, parents, and the children themselves. The more unacceptable the situation is, the greater the resistance. Moreover, the time taken by research is likely to be regarded as lost income by children and employers (Burra, 1995). In addition, collecting data from socially disadvantaged children can be dangerous. There are obvious problems of disease and violence; the children may be in unsafe and hard-to-access situations. It may be legally difficult to contact them due to child protection regulations, or other obstacles typically encountered when studying sensitive topics (Punamäki, 1989; Richter, 1991).

It seems that without institutional support, as in our case the support of the ILO, such studies are virtually impossible. During the data collection phase there were occasional problems, such as when information from the ILO-IPEC-funded NASPEC (NGO), failed to reach the factory owner who consequently did not let our interviewers inside the factory premises. However, after negotiations and the fact that we had the backing of the ILO for this research project we were allowed access to those children who were attending non-formal education classes on the factory premises. Similarly, while conducting research in the Nuwakot District, support from the Chief District and Education Officers, and from Head Teachers proved to be invaluable. Also the fact that some of the education staff in Nuwakot had been also students of Professor Regmi earlier in their careers helped.

Regarding time, the total duration of the data collection was 2 ½ hours per child, which made it possible to collect data quickly. A larger methodological package would not have been feasible. The Psycho-social Health Assessment screening procedure (Ennew, 1994, see Appendix 1) made it possible to cover a wide area of psychological functions in a short time. This was preferred over an extensive survey of working conditions and the work environment. These

results can be generalized across Buddhist Tibeto-Burmese Nepalese children who are either labouring in carpet factories or attending school. There is a good chance that these methods will also work in other parts of the world. However, as long as there are no country norms I would recommend applying these methods within one culture at a time amongst children who work in different occupations.

Limitations

There are at least four limitations that should be taken into account when generalizing the findings of this thesis. The first limitation is that the cross-sectional setting does not make causal explanations possible for the evaluation of the effects of work on the psycho-social development of the labouring children. However, it does allow us to posit an educated hypothesis about the possible effects. In addition, the cross-sectional research was justified due to the high mobility of most of the children in the carpet industry, who work on piece-rate production.

The second limitation relates to the starting-point of these children, which might not have been similar and thus weakens the comparability. For example, the working children might have been from the poorest children whose parents were forced to leave their rural areas of origin for economic reasons. However, the children who were included to this study were matched for ethnicity, age and gender. In hindsight the analysis would have benefited from the availability of socio-economic status (SES) questionnaire data together with health check records for these children. However, as these data were already being allocated for study by a Non-Governmental Organization and access to the labouring children was rather difficult at times, it was decided by the research team to concentrate on the psychological factors.

Third limitation is related to the scarcity of adolescents in the age groups 13-14 years who had only recently started to work. In Nepal, only 52 % of children reach grade five. This problem was solved in collaboration with staff at the NASPEC's Children's Rehabilitation Center. Similarly, there were occasional difficulties in interviewing girls in the above mentioned age cohorts who were still at school. We have good reasons to argue that these schoolgirls were psycho-socially well functioning since their parents had allowed them to continue formal education.

The fourth limitation relates to familiarity with the testing and interview situation for the school-going children. Although the school children was more used to test-taking and pencil-and-paper tasks, the children working in the carpet industry had been participating in non-formal education classes for some time before the study was implemented. Thus, the latter were used to handling pencil and paper to some degree.

Evaluation of the measurements

The methods related to the testing of cognitive skills seemed to function well, apart from the Bender test which produced a high error-mean even for the school group. Persons above age 8 or 9 are expected to have few or no errors

(Taylor, Kaufman, & Partenio, 1984). This raises a question about the ecological validity of Bender test. However, it might also be that in Nepal there are general delays in intellectual development due to nutrition related matters (see Gorman & Pollit, 1996; Panter-Brick et al., 1996). In addition, high concentration of woolen fluff in the factory premises and inadequate hygiene facilities are likely to cause eye-diseases which may affect the performance in Bender test.

The methods for psychological well-being functioned well. However, the Nowicki-Strickland locus of control scale and Reynolds and Richmond Anxiety scales may assume a high level of security in the home and school environments, which will not be the case for children from low socio-economic groups in any society. In addition, other investigators have found it difficult to replicate Nowicki's finding (1976) of three factors (Barling, 1980; Lindal & Venables, 1983; Pietrowski & Dunham, 1983; Raine et al., 1981; Walters & Klein, 1980). Thus, in order to save the working children's participation time we used the short version of the Nowicki-Strickland locus of control scale. Hence, the overall sum scores were used in this study and the associations were examined. Moreover, due to the ambivalent nature of the concept of locus of control - especially in cross-cultural setting; see Hui (1982) - it would be interesting, for example, to examine the associations between locus of control and resilience in collectivist societies. Would it be possible to find empirical support for the claimed (Triandis, 1990) association between external locus of control and collectivist societies?

The tests used in this study have been chosen with respect to their global application, and they were read aloud to the children due to high rate of illiteracy among the children labouring in the carpet factories. All the methods used in the study had a high internal consistency: Cronbach's alphas were for Bender 0.76, WISC-R 0.81, Anxiety 0.78, and Novicki-Strickland Locus of Control scale 0.87. The high level of reliability in this Nepalese population was particularly encouraging for the further analysis of the data. Furthermore, the above mentioned tests were normally distributed among these children. Therefore it was possible to conduct parametric statistical tests for analysis of variances across and within groups. The validity of the tests was supported by the findings, which are consistent with those of previous research.

6.4 Practical implications

A good intervention program for child labourers could incorporate the non-formal-education, structured leisure time activities (Eccles & Barber, 1999; Marsh, 1992; Youniss et al., 1999; Youniss & Yates, 1997), and play sessions which offer an opportunity to accommodate a young person's developing schema to the realities of the external world (Piaget, 1962). Dasen (1984) has noted that play serves as a means to attain a healthy mental life and is truly a basic right for each child. In addition, the time spent with adults and peers is

seen as important in order to explore new combinations of behaviors, experiment with roles, and develop new adaptive strategies (Smith & Dutton, 1979; Sutton-Smith, 1979). Our results would support this kind of an approach to the rehabilitation of working children. In conclusion, a child brought into a well-planned rehabilitation program as described above (even if continuing to work) is more likely to learn adaptable behavior, initiative and the social skills needed to participate more fully in society.

Although targeting interventions towards children in factories is a reasonable policy, there is a possibility that the source of the problem lies elsewhere. For example, extreme poverty or family breakdown may cause migration to the city and raise the demand for child labor. Therefore, as poverty is the underlying reason for child labour, we are forced to think that intervention programs in rural areas might work as a preventive measure for migration. Similarly, intervention programs in factory settings could target child labourers in order to offer them non-formal education for which would help to facilitate the transfer of specific skills to other contexts.

The researcher should be aware of the risks associated with the study of disadvantaged children. The first is that of being overly objective. One could avoid emotion and be purely descriptive. The second risk is that of responding with too much emotion and failing intellectually to grasp the full complexity of the issue (Garbarino, Kostelny, & Dubow, 1992). After interviewing about a dozen children who were physically and mentally abused in one of the carpet factories at which we conducted our research, it was some time before I was able to analyze the complexities in the situation. I realized that the rescue operations conducted by the Ministry of Labour's inspectors rarely occur, but when they do they raise the question "How many other small factories are there where people work in slavery?"

6.5 Future directions

I would suggest that one avenue for future psychological research on child labour would be to examine the applicability of Greenfield's (2000; see 1999) theoretical framework for development and incorporate the latest developments in working memory framework research (Baddeley, 1986; Baddeley, 2000; Baddeley & Hitch, 1974; for a review of working memory tasks see, Numminen, 2002, pp. 18-20). The latter would be interesting where a longitudinal research setting is available, and the aim is to find out the possible effects on neuro-cognitive development while participating in working life at a young age.

My suggestions for future research applying the procedure compiled by Ennew (1994) on child labourers' cognitive skills and psychological well-being would include: (1) adding a short word, non-word, and sentence reading test; (2) ascertaining whether the children work with or without their parents; (3)

ascertaining how many years of formal education a child has already had; (4) complementing NSLCS with the Shapiro Control Inventory's (1994) sub-scales of Domain of Control and Agency of Control; (5) using anthropological or ethnographic research methodologies to allow the relevant topics to emerge for investigation; and (6) using a basic malnutrition indicator as originally suggested by Ennew (1994) but not used in this study. With respect to the latter point, synergy between action programs is a good thing, but to carry-out independent data-collection is even better. Since malnutrition has grave consequences for development (see Gorman & Pollit, 1996), weight and height at least should be checked. Moreover, (7) the last suggestion for future research in this field is to include a basic socio-economic status or household economy questionnaire.

The importance of the right of children to go to school and to grow up in a secure and stimulating environment became evident during this study. However, a combination of work and schooling can perhaps secure both life skills and basic education for working children. A longitudinal setting would help to establish causal explanations between work, the working environment, the development of cognitive skills and well-being. I hope that this study will help to stimulate further research on children's participation in working life.

YHTEENVETO

Väitöskirjan yleistavoitteena on tutkia, eroavatko Katmandussa mattoteollisuudessa työskentelevät lapset heidän maaseudulla kaupunki- sekä maalaismaisesti asuvista ja kouluikäisistä ikätovereistaan kognitiiviselta ja sosiaalis-emotionaaliselta kehitymiseltään. Lasten työnteon vaikutuksista kehitykseen ei ole juurikaan ollut saatavilla tieteellistä tietoa. Kontekstiin liittyvät *tutkimusongelmat* kirjallisuuskatsauksessa olivat: (1) Miten lasten työntekoon osallistumiseen liittyvät arvot eroavat Etelässä (Nepalissa) ja Pohjoisessa? (2) Miten lasten työntekoon osallistumiseen liittyvät arvot muuttuvat mahdollisen modernisoinnin ja sosiaalitaloudellisen kehityksen myötä? (3) Kolmantena tavoitteena on tutkia lasten työntekoon liittyvää sosiologista, kasvatustieteellistä, taloustieteellistä, psykologista ja institutionaalista kontekstia. Erityisesti, miten ko. tieteissä on lähestytty lasten työnteon tematiikkaa.

Kognitiivisia taitoja koskevat tutkimusongelmat ovat: (1) Eroavatko mattotehtaissa työskentelevät lapset koulua käyvistä kognitiivisilta taidoiltaan? (2) Kuinka ympäristötekijät, kuten koulutuksen puute ja työskentely varhaisella iällä, vaikuttavat tutkimuksen kohteena olevien lasten kehitykseen? Kognitiivisten taitojen osalta oletin, että (1) koulua käyvillä lapsilla on mattotehtaissa työskenteleviin lapsiin verrattuna paremmat kognitiiviset taidot ja (2) iän myötä kognitiivisten taitojen tulisi parantua molemmissa ryhmässä.

Psyykkistä hyvinvointia koskevat tutkimusongelmat ovat: (1) Missä määrin tehtaissa työskentelevät lapset eroavat koulua käyvistä tovereistaan ahdistuneisuuden sekä kontrolliuskomusten sisäistymisen tasoltaan sekä tulevaisuuteen liittyvien huolien osalta; (2) Millä tavoin lasten hyvinvointi on yhteydessä kontrolliuskomuksiin ja koettuihin ongelmiin? Hypoteesit olivat: (1) työtä tekevät lapset omaisivat alemman hyvinvoinnin tason, (2) ja sisäisemmän kontrolliodotuksen kuin koulua käyvät lapset. Lisäksi, (3) tyttöjen ahdistuneisuuden taso olisi korkeampi kuin poikien ja (4) ulkoinen kontrolliodotus olisi yhteydessä korkeaan ahdistuneisuuden tasoon sekä (5) työtätekevien kaupunkilaisten ja maakunnassa koulua käyvien lasten julkilausutut ongelmat eroaisivat.

Tutkimuksessa selvitetään, onko työtätekevillä lapsilla havaittavissa heikentymistä kognitiivisissa taidoissa. Erityisesti tutkitaan aritmeettisissa taidoissa, muistitoiminnoissa, kontrolliorientoitumisessa, sanasujuvuudessa, ahdistuneisuudessa sekä ongelmien esiintymisessä mahdollisesti ilmeneviä eroja. Lisäksi tutkitaan sukupuolten välisiä eroja.

Tutkimuksen *aineisto* (N=254) on kerätty vuosina 1996–97 Kansainvälisen työjärjestön (ILO:n) ja Jyväskylän yliopiston psykologian laitoksen rahoituksella. Lasten ikää ja etnistä taustaa kontrolloitaessa kiinnitettiin huomio siihen, että he ovat 10–14-vuotiaita – lisäksi työkokemus työtä tekevien lasten kohdalla ja kuuluvat tiibetiläis-burmalaiseen kieliryhmään. Lisäksi lapset kuuluivat buddhalaiseen väestön osaan, kuten Lama, Tamang, Magar tai Sherpa heimoihin. Tutkimustulokset on raportoitu yhteistyössä nepalilaisen Tribhuvanin yliopiston psykologian laitoksen kanssa. Katmandussa mattotehtaissa työskentelevät

lapset jaettiin kognitiivisten taitojen arvioimiseksi työkokemuksen perusteella *lyhyen* (alle vuoden työkokemuksen) ja *pitkän* (kaksi vuotta tai enemmän) työkokemuksen omaaviin ryhmiin. Analyysissä ei näin ollen otettu huomioon 60 lasta, joilla oli yli vuoden, mutta alle kahden vuoden työkokemus muutoin kuin työkokemuksen vaikutusta tarkasteltaessa. Psykykkissosiaalista hyvinvointia tutkittaessa analysoitiin koko aineisto.

Koulua käyvät lapset auttoivat kotitöissä vanhempiaan ennen ja jälkeen koulupäivän. Osa nepalilaisessa mattoteollisuudessa työskentelevistä perheistä on muuttanut Nuwakotin maakunnasta noin 70 km pääkaupungista luoteeseen, missä koulua käyvät lapset asuivat sekä maalais- että kaupunkialueilla. Suurin osa Katmanduun muuttaneista työtä tekevästä lapsista eli ydinperheissä. Kuitenkin on oletettavaa osan lapsista työskennelleen ns. velkavankeusjärjestelyssä. Tällöin vanhemmat ovat joko myyneet lapset tai ottaneet lainaa lasten työpanosta vasten. Ongelmalliseksi velkavankeuden ottamisen muuttujaksi tutkimukseen tekee se, etteivät lapset ole tietoisia tästä järjestelystä. Työtätekevät lapset kuuluvat köyhimpiin perheisiin.

Käytetyt *menetelmät* olivat WISC-R testit Aritmetiikka ja Numerosarjat, Bender-testi (1938; Koppitzin 1975 pisteytystä käyttäen), Sanasujuvuus (eläin- ja ruokasanasto, (Lezak, 1995), Reynolds ja Richmond (1978, 1997), Ahdistuneisuustesti, Novicki-Stricklandin (1973) kontrolliodotusasteikko lapsille, sekä lauseentäydennystehtävä ”suurin ongelmani on ...” (12 kysymyksestä, jotka Ennew, 1994, mukautti Phillipsin, 1965, thaimaalaisten maanviljelijöiden persoonallisuuden piirteitä kartoittaneesta tutkimuksesta, valittiin yksi). Kaikissa analyyseissä käytettiin raakapisteitä maakohtaisten normipisteiden puuttuessa.

Poikkitieteellinen katsaus lasten työntekoon osallistumiseen ja tutkimuskontekstiin osoitti ensinnäkin, että Etelässä (vs. Pohjoisessa) kunkin maan saavuttama sosio-ekonominen taso vaikuttaa siihen, miten lasten työelämään osallistumista arvostetaan. Toiseksi, katsaus kyseenalaisti modernisaatioteorian ”totuutena” pitämän väittämän siitä, että modernisaation edetessä kollektivistiset arvot muuntuisivat kohti länsimaisia yksilökeskeisiä arvoja. Lisäksi modernisaation seurauksena tapahtuvan sosiaalis-taloudellisen kehityksen ohella lasten työteon yleisyyteen vaikuttaa laadukkaan koulutusjärjestelmän ja terveystalouden saatavuus. Näillä palveluilla on epäsuorasti vaikutusta vanhempien asenteisiin lasten työelämään osallistumista kohtaan. Kolmanneksi, lasten työelämään osallistumisen säätely edellyttää lasten kehitykselle vahingollisten töiden määrittelyä. Kansainväliset toimet mahdollisesti vahingollisten töiden määrittämiseksi nojaavat yleisesti poliittisiin päätöksiin perustuen vaaralliseksi katsotuista toiminnoista saatuihin kokemuksiin (kts. ILO, 1999, Päätöslauselma 182 ”Lasten työnteon pahimmat muodot”). Kansainvälinen yhteisö on kiitettävästi edennyt tässä työssä aloilla, joiden vahingollisuudesta kehitykselle ei ole epäilystä – esimerkiksi lasten toimiminen rikollisorganisaatioissa erityisesti ihmisten tai huumeiden salakuljetuksessa, sotilaina, prostituutiossa, tehdastyössä, tai suoraan tekemisissä kemiallisten aineiden kanssa. Kansainvälinen yhteisö on pyrkinyt myös eri toimin alentamaan aliravitsemuksen määrää, jolla on omat vakavat vaikutukset inhimilliselle kehitykselle. Näitä ovat muun muassa älylli-

sen kehityksen ja fyysisen kasvun viivästymät.

Empiirisessä tutkimuksessa todettiin, että koulua käyvät lapset olivat kaikissa kognitiivisissa testeissä parempia kuin mattoteollisuudessa työskentelevät lapset, lukuun ottamatta "Numerosarjat taaksepäin" tehtävää, jossa työskentelevät lapset eivät eronneet koulua käyvistä. Vähän ja pitkään työtä tehneiden lasten välillä ei havaittu kognitiivisissa taidoissa eroja. Kuitenkin työkokemus oli yhteydessä paraneviin "Numerosarjat eteenpäin" pisteisiin ja heikentyviin visuokonstruktiivisiin taitoihin. Tulokset viittaavat työnteon mattotehtaissa lisäävän verbaalisen lyhytkestoisesta muistin ja tarkkaavaisuuden taitoja, mutta alentavan visuokonstruktiivisia taitoja. Kolmanneksi, pitkän työkokemuksen omaavat pojat olivat tyttöjä parempia aritmetiikan taidoissa. Työskentely mattoteollisuudessa kehittää joitakin kognitiivisia taitoja, mutta tämä kehitys jää hyvin rajatulle alueelle. Toisaalta tutkimus osoitti oppimista tapahtuvan koulun ulkopuolella ja jokapäiväisen elämän puitteissa. Mikäli siirtovaikutusta tietyistä taidoista muihin taitoihin tai yleistymistä toiminnoista toiseen tapahtui, sitä tapahtui molemmissa ryhmissä aritmeettisessä päättelyssä sekä koululaisryhmässä sanasujuvuuden tehtävässä.

Psyykkistä hyvinvointia koskevat tulokset osoittivat mattotehtaissa työskentelevien lasten hyvinvoinnin olevan matalammalla tasolla verrattuna koulua käyviin lapsiin. Työtätekevillä lapsilla oli koululaisiin verrattuna korkeampi ahdistuneisuuden taso. Koulua käyvien lasten sisäinen kontrolliodotus oli alempi työtätekeviin verrattuna. Työtätekevien lasten voidaan katsoa saavuttaneen elämäntaitoja, jotka lisäsivät heidän elämäntaitojensa tunnetta. Koko aineistossa sisäinen kontrolliuskomus lisääntyi iän myötä. Ulkoinen kontrolliodotus oli yhteydessä lisääntyneeseen ahdistuneisuuteen ainoastaan työtä tekevien lasten keskuudessa. Koulua käyvien lasten ongelmat liittyivät ihmissuhteisiin koulussa, työtätekevien lasten ongelmat viittasivat todellisuudentajuisesti suoraan köyhyyteen ihmissuhteiden sijaan. Lasten huolet liittyivät heidän elinympäristönsä kovuuteen ja osoittivat lasten olevan tietoisia omasta sosiaalilaidollisuudesta asemastaan.

Käytetyt menetelmät erottelivat lapsia luotettavalla tavalla ryhmien sisällä ja välillä. Testaaminen ja haastattelut tapahtuivat lasten jokapäiväisessä ympäristössä. Kuitenkin tehtävätyypit ja testaustilanteen tuttuus saattoi parantaa koulua käyvien lasten suoritusta. Yhtenevästi tehtävän tuttuus saattoi vaikuttaa "Numerosarjat eteenpäin" tehtävässä. Pitkään työtä tehneiden lasten hyvä suoriutuminen tässä osoitti joko tuttuutta tai siten heidän pisteisiinsä vaikutti pisteiden jaon alkaminen kahdesta pisteestä (verrattuna "taaksepäin" kolmesta pisteestä), joka lisää keskiarvoja, kun käytetään raakapisteitä.

Tämän tutkimuksen kenties merkittävin ansio liittyy yleisesti vallitsevien stereotyyppien kyseenalaistamiseen sekä saatavaan tietoon Euroopan ja Yhdysvaltojen ulkopuolelta vaikeasti tutkittavasta väestön osasta. Tutkimus tuotti tietoa mahdollisista psyykkiselle terveydelle vaarallisista seurauksista sekä mahdollisista positiivisista seurauksista, joita työskentely varhaisella iällä tuottaa. Ottaen huomioon kehitysmaiden koulutuksen haasteet tutkijoiden velvollisuus on nostaa esiin hyötyjä, joita koulun ulkopuolisella koulutuksella kuten

työnteolla on. Ideaalitapauksessa työnteoko yhdistyneenä muutaman vuoden muodolliseen koulutukseen voisi mahdollistaa työssä kouluttautujan erityisten taitojen siirtovaikutukset muihin toimintoihin.

Avain sanat: kehityspsykologia, lasten työnteoko, kognitiiviset taidot, koulutus, hyvinvointi, työ

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Appendix 1 The Psycho-social Health Assessment Procedure

Measures which were used from the ILO Psycho-social Health Assessment Procedure, compiled by Ennew, 1994:

Tests and interviews	Testing	Time (in minutes)
1. WISC-R: Arithmetic and Digit Span	<i>Attention and short term memory</i>	15
2. Bender Visual Motor Gestalt test	<i>Visuo-constructive skills</i>	5
3. Verbal Fluency	<i>Linguistic fluency</i>	15
4. Reynolds and Richmond Anxiety test	<i>Anxiety</i>	40
5. Nowicki-Strickland Locus of Control scale	<i>Sense of powerlessness, self-responsibility Locus of Control</i>	10
6. Sentence completion test	<i>Anxiety, Problems, Fears, and Coping strategies</i>	10
7. Semi-structured interview	<i>Loneliness, Coping, Health, Sex abuse, Work place ecology, Powerful person</i>	15
8. Observation	<i>Appearance and manner</i>	<u>3</u>

Total: 2 Hours

ORIGINAL PAPERS (ARTICLES)

I

CHILD LABOUR: A MULTI-DISCIPLINARY REVIEW

by

Esa Alaraudanjoki 2000

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CHILD LABOUR
A multi-disciplinary review

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Introduction

The aim of this article is twofold: firstly, I will examine the value of children's participation in working life in the South¹ and particularly in Nepal. My second objective is to assess the theoretical possibilities of the psychosocial health screening tool used to answer the questions raised in the recent literature on child labour. Child labour is a social problem arising out of family poverty and the fact that children form a cheap, usually obedient, labour force not recognized by trade-unions. I will examine the sociological, psychological, and institutional research contexts in relation to a study of children working in the carpet industry in Nepal, which was carried out by the author in collaboration with Professor Murari P. Regmi from Tribhuvan University. As child labour is a social and to some degree also cultural problem, the investigation will be conducted from a sociological and a social anthropological viewpoint. The "cultural problem" presumably arises from the different values assigned to children's participation in working life and from the conceptualizations of childhood prevalent in different cultures. There is thus a need to analyze the basic question of what kind of work is actually a hindrance to the development of the human potential of every child. This paper will not, however, discuss issues related to the elimination of poverty, as this is a topic more closely related to the field of political economy.

This paper is an attempt to describe the contextual and temporal dimension of an ongoing study on children who work in the Nepalese carpet industry. The contextual approach will be effectively used here mainly to study child development in adverse environmental conditions, such as poverty-driven child labour. The sociopolitical environments will be conceptualized along the *North – South* dimension throughout the text. Furthermore, the claimed *globalization of childhood* will be discussed later. Moreover, the present author tries to answer the call made in the *World Summit for Social Development, 1995*, to researchers to take responsibility for social development in the South (see for more Jahoda 1975, Kagitçibasi 1991, 1994b, 1996, Nsamenang 1992, Sinha 1983, Sinha & Kao 1988, Edwards 1996). In studying societal changes in the developing world, I agree to some extent with the views of Bame Nsamenang (ibid.) and Çigdem Kagitçibasi (ibid.) according to whom research should be policy-driven and promote the overall development of societies. Thus, basic research must be postponed because there are more urgent problems to deal with.

In this paper child development in context and the further issue of social disadvantage will be discussed. The regulation of children's participation in working life requires categorization which due to lack of scientific data has so far been based on political classifications of working life. Further, the main international conventions related to child work will be presented, and it will be pointed out which of these have been ratified by the Nepalese Government. The child labour literature will then be reviewed, especially, the question of how harmful or hazardous a child's work might be. After this the emergence of *Childhood* as a object of research and *Child labour studies* in the social sciences will be discussed. Finally, an overview will be given of the ongoing research into the Nepalese child laborers in carpet factories, also including a description of their working conditions.

Development in context

The necessity of the children to go to work can be seen as a symptom of the larger phenomenon of *social disadvantage*. Social disadvantage (low education, low income, low employment levels or unemployment) is ad-

ditionally associated with lack of opportunity for developing effective social skills and parenting skills, which also serve as a negative mediator. In socioeconomic contexts where children's material contribution to the family is substantial, a *utilitarian* value is attributed to children and their work is seen as important. With changing lifestyles, especially with urbanization and increased parental education, child work loses importance. This change is seen both in the decreasing amount of actual work and also in the lower value attributed to it by parents. The most important dimensions of variation are those of rural-urban and socioeconomic status (SES) (see Kagitçibasi 1996, 19–34).

There are mediating variables (at the levels of the caretaker, family, and community) between the macrolevel adverse conditions, such as poverty, and the growing child. The very existence of mediating variables allows room for action in favor of the growing child. The context of development has a long history in social sciences. There are two theoretical developments which are of interest here. One of these is ecological theory and the other is life-span development theory. Especially with the impetus provided by Uli Bronfenbrenner (1979, 1986), conceptualizations of environmental systems, all nested within one another like Russian dolls, multilevel bases of human development and functioning are taken seriously. Similarly, in cross-cultural psychology, Berry's ecocultural model of cognitive style (1976, 1980) has found acceptance as a general model of person-environment relations (Berry et al. 1992). In addition, problem-oriented research has emphasized family interactions as a key context variable for planning of programs to improve children's welfare. In short, one should be aware of the different levels of analysis while planning actions based on policy driven research. The outcomes of activities are contextually and culturally dependent.

Catherine Boidin (1995, 23–70) asserts that low school attendance rates, fragmented repetitive work, relations between child workers and employers, the distance between the child and his/her family, and the isolation and separation of the child from his/her family are the main *risk-factors* affecting the development of children who work. Moreover, different forms of violence are typically perpetrated on the child worker: under-remuneration, poverty and debt, isolation, ill-treatment, being an object, and being without a future may severely diminish the child's possibilities for optimal development. Furthermore, Sameroff and Fiese (1992) point out that the number of risk factors work in an additive, not a multiplicative,

fashion. For example, when two or more stresses occur together, the chance of a damaging outcome goes up at least fourfold, and when four risks are present, the chances of later damage increase tenfold. In addition, Sameroff et al. (1997) on the basis of their longitudinal studies note that changes in the numbers of risk factors are not common, and stability rather than change appears to be the rule. In short, experience accumulated in the field has led to the finding that if four or more risk factors are present the more likely will children be to have problems in their later lives (Rutter 1979, Sameroff et al. 1997), see also pages 169–173 below.

Regulation of children's participation in working life

International efforts to regulate and end children's participation in working have a long history. This work began with the ILO in 1919 in the context of the League of Nations and has continued since 1945 in the context of the United Nations, gaining impetus in the International Year of the Child 1979 and, especially, in the Convention of the Rights of the Child 1989 (CRC). National laws follow the Conventions and Recommendations adopted by the International Community.

In contrast, a fundamental critique of the *unproductive child* is currently being conducted by social scientists and lawyers. Already in the 1970s the provisions of some labour laws were said to represent an undue restraint on the rights of young people (Mnookin 1978). Although children below the age 15 are working throughout the world, their participation in trade unions is restricted. The CRC has set the age-limit for childhood at 18 years, which is usually the age of enfranchisement. Despite this, the age-limit of 15 years stated in the ILO Minimum Age Convention has most often been used in defining child work. However, from their psychological viewpoint the effects of work on 16–17-years-old teenagers might be different from its effects on children under 13 years old.

The main ILO Conventions on children include: Forced Labour Convention 1930 (N. 29), Abolition of Forced Labour Convention 1957 (N. 105), and Minimum Age Convention 1973 (N. 138), which until recently has been the most important and widely accepted convention. The core of the Minimum Age Convention is that children below the age 15 ought not to work. However, if the legislation of a country is different from this it needs to be followed. For example, in Nepal the minimum age for participation in working life is 14 years. In addition, to engage a child as a la-

bourer the Nepalese Children's Act (1992) requires permission from the Children's Welfare Officer and the child's parents or guardian. In order to facilitate the enforcement of the child labour laws, the Labour Act (1991) mentions the establishment of Labour courts in Nepal. Furthermore, according to the Prison Act (1963) a child in jail cannot be put to work (for more details see Mhatre 1995, 44, 94–96).

Next the conventions ratified by the Nepalese Government will be presented. According to the ILO-Office Nepal (1998) the Nepalese Government had up to May 1998 ratified seven Conventions, including the Weekly Rest (industry), ratified in 1986 (N. 14); Right to Organize and Collective Bargaining, ratified in 1996 (N. 98); Equal Remuneration, ratified in 1976 (N. 100); Discrimination (Employment and Occupation), ratified in 1974 (N. 111); Minimum Wage Fixing, ratified in 1974 (N. 131); Minimum Age Convention, ratified in 1997 (N. 138); and Tripartite Consultation, ratified in 1995 (N. 144). These Conventions have been notified in the Labour Act 1992, and Labour Act 1997 by His Majesty's Government (see ILO 1999), and form the basis for the possible interventions in Nepal.

The most recent and most debated convention is the *Worst Forms of Child Labour Convention 1999* (N. 182). The four basic categorizations of the worst forms of child labour include all forms of slavery or practices similar to slavery; the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; the use, procuring or offering of a child for illicit activities; work which, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety or morals of children. There is probably no disagreement about the three first categories. However, one could argue about the reasoning behind the vagueness of the fourth. It leaves open the question of what in fact is harmful for the social development of children and leaves it to the national level after consultations with employers' and workers' organizations. At present, guidelines concerning the definition of hazardous work are included in the *Recommendation* only, and therefore they are not subject to ratification. Thus, it is interesting to review the recent theoretical and practical suggestions for more accurate culture specific research on child labourers.

The child labour question also relates to the Human Rights issues. According to UNICEF (1999), the United Nations Convention on the Rights of the Child (1989) has broken all records as the most widely ratified

human rights treaty in history. Its uniqueness stems from the fact that it is the first legally binding international instrument to incorporate the full range of human rights – children’s civil and political rights as well as their economic, social and cultural rights – thus giving all the rights an equal emphasis. Eyleen Verhallen has reminded us that the “Right not to be exploited, not child labour” is the spirit of Article 32 in the Convention of the Rights of the Child. Article 32 provides for “the child to be protected from performing any work that is likely to be hazardous or to interfere with the child’s spiritual, moral or social development” (see UNICEF 1999).

Literature review

Definitions of child labour

Because different cultures value children’s participation in working life differently it is difficult to evaluate how children’s work is valued in different contexts. After that I will review some multidisciplinary scientific approaches to child labour: these include economic, anthropological, sociological, educational, and psychological studies. Recently, Judith Ennew (UNICEF 1999, 43–44) has pointed out that “there is no unified discourse on working children”, and “more space and time are spent on definition than any other topic in the field”. One such definition is the “worst forms of child labour” (Convention N. 182, 1999), presented above. Furthermore, there is also the question how one decides whether one kind of work is more detrimental to children than another. According to Bequele and Myers (1995, 26–7), experience shows that questions of this sort have no purely technical solutions, and they must be resolved by agreement rather than by formula, reflecting realities and cultural values, and therefore differing from place to place. What is important is that concrete, feasible decisions be made about which work problems require the most urgent attention, and that these decisions enjoy at least a modicum of social credibility and legitimacy. It is a question more successfully lived through in practice than intellectually agonized over beforehand. As a researcher of child labour, I fully support this formulation of the nature of policy driven research and implementation of the current understanding of the phenomenon of child labour.

Economists on child labour

There are powerful economic arguments for measures to reduce child labor. Premature and extensive engagement in work prevents children from accumulating human capital and having higher earnings in later life, while economic growth is affected by lower rates of productivity growth (Fallon & Tzannatos 1998, 5). The viewpoints of economists are related to so called *push* and *pull* factors. For example, Moni Nag et al. (1978) has shown that the work input by children in Javanese and Nepalese villages is quite substantial and children probably have a net positive economic value to their parents in these villages.

Recently, Richard Anker and Helinä Melkas (1996) have reported on the experiences of Non-Governmental Organizations (NGO) in using economic incentives to eliminate children from hazardous work. According to them, child labourers do not have a chance to acquire sufficient human capital to become skilled adult workers. In addition, the widespread use of child labour also increases the economic value of children and therefore helps to maintain high fertility rates. On the other hand, the numerous demand factors that pull children to work are an important reason for the continuation of child labour. For example, children are often seen by employers as less costly, more trustworthy and less troublesome than adult workers. Furthermore, they conclude that many poor families feel that the formal school system is irrelevant for them at present because of poor quality of teaching and schools as well as an irrelevant curriculum (Anker & Melkas, 1996).

Elson (1982) has noted the general problem that most of the research on child labourers is not longitudinal or even long-term work with the same population. Thus research tends to provide unconnected "snap shot" descriptions of children's working activities. It is argued that many children are involved in more than one type of work on a regular basis. Moreover, the labour market is distinguished by divisions of age as well as gender, ethnicity and other, non-economic, social structures. However, it is to be said that there are factors which makes cross-sectional approaches justified. For example, the high mobility of children and their very participation in many types of work activities do seem to favor this approach (see p. 181).

One of the greatest merits of the arguments recently used by economists has been to show that the "nimble fingers" argument used by the

carpet industry to justify their use of children in their factories is not valid. For example, Levinson et al. (1996, chapter 12) have concluded that children are not irreplaceable workers in India's carpet industry: "children do not have skills which adults cannot match. This is not to say, however, that it would be costless to replace children with adult weavers" and "many of them would only accept such employment for a higher wage than that received by children, especially apprentices and bonded child workers".

Anthropologists on child labour

The bulk of research on working children, mainly street children, has been conducted by anthropologists (see for example, Whiting & Whiting 1975, Munroe, Munroe & Shimmin 1984, Panter-Brick, Todd & Baker 1996, Burra 1995, Baker, Panter-Brick & Todd 1996, 1997, Nag, White & Peet 1978, Nieuwenhuys 1994, and Reynolds 1996). The findings by anthropologists lend support to the value of the real productivity for children in contrast to *token* chores. In a classic study, *Children of Six Cultures*, Beatrice and John Whiting (1975) found that child work in farming communities taught children responsibility and gave them a sense of worth and involvement in the needs of others. Similarly, in the North it has been found that affluent and suburban children are also likely to work (for more details see Morrow 1992, Landrigan et al. 1992, McKechnie et al. 1994).

Catherine Panter-Brick et al. (1996) found that in Nepal, the absence of family – a feature which distinguishes homeless children in developing countries from the homeless elsewhere – does not appear to affect adversely indicators of growth status. Contrary to the situation of homeless families in the West, homeless children in Nepal are not necessarily "at the bottom of the heap" in terms of socio-economic status and physical health. For some children the adoption of street-life may represent both a rational and successful response to their prior circumstances. Similar views have been expressed by others who have studied homeless children in Africa and in South America (see Veale 1992, Aptekar 1988, and Ennew 1994). This may imply that those children who do not survive in the streets move on to other jobs, for example to the carpet industry – although children in the carpet industry are more often recruited directly from the villages around Kathmandu than through direct contacts with the children. In addition, Nepalese children's street-life may still differ from the experiences of the Indian pavement children who live with their parents on the

street; hence, having no physical home hardly serves as a criterion for homelessness as such.

The societal valuations of children who are working in the carpet industries in Nepal can be assessed, at the moment, using Rachel Baker's (1998) study on street children in Nepal. She has found out that the identities of the street children, 'Khate', has adopted the middle-class definitions used to describe their life-styles via contacts with the media and NGO's (an example of a respected NGO in Nepal is Child Workers In Nepal Concerned Centre (CWIN)). Interestingly, she mentions children who work in the carpet industries, and quotes the boys saying: "Khate work is easier than carpet weaving and washing up in teashops, but about the same as working as a tempo conductor, as long as the driver keeps his word and pays you properly" (Baker 1998, 212).

Sociologists on child labour

The sociological themes relevant to examining the value of children's participation in working life include *socialization, education and modernization* and possible cultural lags in societies' valuations, which might become hindrances to withdrawal of children from economic activities.

Since the ideology of *childhood* was first widely promulgated in the 1960s by the French historian Philippe Ariès (1960, 1962), there have been efforts to develop research in the area. Within psychology and educational science, children and their development had, however, been studied as early as in the beginning of the century. In the early classical sociological writings, such as those of Emil Durkheim (1911/1956) and Talcot Parsons (1966), children were seen either from the point of view of moral education or alternatively as members of their families, thus belonging to one sub-system of society. However, the discovery of children as a specific social group was only made by sociologists in the 1980s. In addition, parents have increasingly adopted a more abstract perception of childhood (Pollock 1983). In short, children and childhood connect to a range of other issues and social processes and are approachable from a number of sociological viewpoints (Alanen 1992).

The recent developments in the social sciences in the study of children are also related to the concept of *constructivism*. Peter Berger and Thomas Luckmann (1966, 210) have argued that the human reality is an outcome of "socially constructed reality". The core of social constructivism

is the proposition that humans construct knowledge through social interaction. One could see *child labour* together with "childhood" as socially constructed or negotiated concepts. Whereas, *deconstruction* is a process whereby social realities and their underlying assumptions are laid bare and explicated from a certain interest viewpoint. It has been argued for example by Alan Prout and Allison James (1990) that the change in childhood research could form the basis of a new paradigm. Their book *Constructing and reconstructing childhood* (James & Prout 1990) have the quality of *re-presenting* childhood in a manner that takes into account the temporal dimension which is more in line with children's perceptions of the world, the focus of which lies in *presence*. They present three basic principles underlying childhood research: first, childhood is to be understood as a social construction. Second, childhood can never be entirely separated from other variables such as class, gender, or ethnicity. Third, childhood and children's social relationships and cultures are worthy of study in their own right, and not just in respect to their social construction by adults. Ethnography is recommended as a methodology. The emphasis is on the construction of pictures of children's social lives in the temporal form of presence, rather than in past or future, although they are intertwined with human perceptions of the world.

Jo Boyden (1990, 1997) has noted the export of the concept of childhood to the South during the twentieth century. Apparently, there are more than one experience of *childhoods* and the *universalistic model* of childhood is misleading when it is used by international and national organizations. Importantly, Boyden also points out that these often are very different views by the welfare or rights practitioners and parents and children about the activities and experiences suitable for child life. What the former may consider as pathological behaviour patterns may be seen by the latter as integral to normal *socialisation* which usually refers to growing up/older and becoming a part of the functioning system of society.

Modernization and its relationship to the situation of the children in the South is another sociological perspective through which child labour can be investigated. Although modernization theory has lost its significance among sociologists as a result of severe criticism (Benedix 1967, Gusfield 1967) its core argument is still considered valid by many scholars (see for example Kagitçibasi 1994a). The core of the modernization theory is the assumption of *unidirectional change* toward the model found in the North with social development (Kahl 1968, Dawson 1967, Doob

1967, Inkeles 1969). Thus countries in the South are often characterized as *transitional societies*. The Northern model usually implies a system of *independent* relationships, whereas the Southern model refers to a *collectivist* society. The second assumption, *the conversion hypothesis*, is that the family patterns found in the North have evolved toward nucleation and individualistic separation as a necessary outcome of industrialization. Therefore, it is claimed that industrialization will also engender the same changes in family patterns in the South.

Furthermore, in the South, where economic and social change as well as urbanization have been very rapid, and where it is most difficult to ensure that quality schooling is both available to all and that it yields tangible benefits for all, there are tensions between the traditional and modern conceptions of childhood (Oloko 1994). However, as the focus of my paper lies in the contextual valuations of the participation of children in working life in Southern contexts, it could be argued that from the children's point of view modernization with socioeconomic development leads to wider access to schooling and increased urbanization.

Sarane S. Boocock (1976) has suggested that, in the North, we can no longer afford to treat the young as an expensive consumer item, nor to keep children segregated from the productive life of community. Some psychologists support this view with evidence that economic dependency can be a psychological hazard to children (cf.; page 172 Jeremy Kagan). The sociologist Glen H. Elder (1974) found that during the Great Depression there was an adult-like experience among children, which increased children's independence, dependability and maturity in money management. His conclusion was that if the task is not excessive or exploitative, being needed gives rise to a sense of belonging and place, of being committed to something larger than the self.

In the North, the trend has swung in socio-economic attitudes towards the worker child from 'Useful' to 'Useless', and again towards 'Useful' since the beginning of the twentieth century (Zelizer 1985). The transition from the economically useful to the economically useless child was not a precisely timed event, but a gradual and uneven process. To this day, the economic value/cost of a child is still a concern, particularly in rural areas and sometimes among the urban lower class, and certainly so in the South. However, economically 'useful' children remain the exception in the North – despite the latest ILO estimate of 5 million child workers in Europe.

Jens Qvortrup (1985) has stressed the need to recalculate existing population censuses and occupational health databases in order to obtain further information about children. This recognition of a lack of data dates back to the 1980s when interest in children as a object of study in their own right was discovered in sociology.

Meyer (1983) has argued that, for many children, schooling acts neither as a channel of upward social mobility nor as an instrument of social change and personal development but as yet another medium of social control. Furthermore, it can further disadvantage the poor child by acting as a drain on income and undermining the direct transmission of culture. Recently, Jens Qvortrup et al. (1995, 334) have argued that "children's school activities, as they are organized systemically by adults and continuously adapted to new modern technology and economy, must in principle be understood as the continuation of child labour of previous modes of production". Theoretically, Qvortrup et al. are probably correct. However, one might consider the significance of education in other terms, too (see p. 169–170).

Sociologists have also worked hard to define child labour. The United Nations special agencies advocate, quote and research child *work* and child *labour*, where the latter refers to especially harmful or dangerous work (Boyden 1990). This distinction between harmful and suitable (if not desirable) work, as defined by legislation in the North has become the main frame of reference of most contemporary governmental and bureaucratic approaches to children's work. Many countries in the world have now either ratified or adopted modified versions of the child labour legislation prepared and propagated by the ILO in 1978, the Convention 138. However, it is to be noted that although the harmfulness of child work has been questioned there is no consensus about it. On the other hand, Olga Niuwenhuys (1994, 27) has remarked that "the notion of child labour conveys the idea of an abstract and sexually neutral child doing economically valued but undesirable work". She prefers the definition of work by E. Schildkrout (1981, 95) who argues that "any activity done by children which either contributes to production, gives adults free time, facilitates the work of others, or substitutes for the employment of others" is work. In short, the description of the worst forms of child labour (see above, p. 161) is the latest attempt to define the hazardous areas of children's participation in working life and continues to serve as guideline for future actions.

Ben White (1999, 139–140) argues for the *participation* of children in discussions about child labour, quoting child groups: "we are against exploitation in work, but we are in favor of work with dignity and appropriate hours, so that we have time for education and leisure" and "we are against the boycott of products made by children". Thus, although nowadays children's participation in discussions and decision-making is more and more encouraged, participation has not been defined or evaluated.

Educationists on child labour

Special educationists Elizabeth Graue and Daniel Walsh (1998, 1) have criticized psychology for not trying to understand children but instead pursuing the lofty academic goals of the absolute universal law and the ultimate treatment. In their interpretive research orientation Graue and Walsh (1998, 9) define context as "a culturally and historically situated place and time, a specific here and now", and "the most important facet of any context is the other people who share a particular here and now" (1998, 11). The context of child labour research ought to be kept in mind by those who are conducting studies on children who work.

The problems of education and specifically, schooling in the South will be discussed in this chapter. Some of the problems of schooling in Southern contexts include inadequate public schooling; inadequate access to schools; the poor quality of instruction, often involving rote learning and recitations; lack of educational materials; at times the irrelevance of curriculum to local/national realities; and overcrowded classrooms (Myers 1991, Serpell 1993). Schools influence children's development in two ways. The learning of specific knowledge and skills is a direct effect of classroom teaching (Good & Brophy 1986). Sylva (1994) emphasises the indirect effects of schooling. She asserts that when schools change pupils' self-concepts, goals, beliefs about success and social responsibility they exert a powerful influence not only on subsequent education but also on employment and community participation in adulthood. In addition, the role of education on children's cognitive development is important.

In the study by Kathleen S. Gorman and Ernesto Pollitt (1996) in Guatemala it was found, in line with empirical findings from industrialised countries (Rutter 1979, Sameroff et al. 1987, Williams et al. 1990), that the performance of subjects declined as the number of risk factors to which a subject was exposed increased. More importantly, primary education

was observed to buffer the effects of early risks for a subset of subjects. Subjects at high risk who stayed in school performed significantly better than subjects with similar levels of risk who completed fewer than four years of primary school. In other words, schooling not only enhances cognitive development but also acts as a preventive measure against environmental risk factors.

Michael Vlassoff (1991) has pointed out the significance of education for the attitudes of parents. Where education has taken hold as it were, an important social change seems to take place. Parents begin to value their children's education more and more so that perhaps less work is demanded of them while more effort is made to give them the maximum education possible. As a consequence, children's costs become conscious facts and their economic benefits begin to pale in significance (for details see Vlassoff 1991). Keith Lewin and colleagues (1983) has also pointed out the impact of schooling on fertility. The evidence suggest that in *low income* countries, such as Nepal, a few years of schooling (up to four years) leads to an increase in fertility, whereas subsequent years of schooling lead to a decrease. Thus, by making the primary schooling accessible to all, particularly females, fertility levels could be reduced in *low income* countries.

In the North it is customary in many societies to employ children because they want to consume, and their parents allow them to work. On the other hand, Roger Hart (1992) has argued that children are economically dependent for an increasingly longer time. In the South, Patil (1986) has shown in Bangalore that economic compulsion is only one of the motives behind child work. Of 600 working children, 42 per cent indicated that they worked for reasons such as failure to advance at school, the desire of their parents for them to receive a training, or the desire to enter what in adulthood will amount to a lucrative employment.

Psychologists on child labour

The main psychological assumption about child labour is related to the child's social environment or context: "How children perceive their work depends on their social environment and cultural context" (see for example Woodhead 1999b). In this chapter, first, the criticism towards psychology in the field of developmental psychology will be reviewed. Then the significance of cultural background in performance in psychological tests will be discussed. Moreover, the interesting view of the possible shift that

has happened in the South as a result of the modernization process will be presented. Then the issues related to social constructionism in the field of psychology will be examined, because the process of social construction constitutes the very basis of how we define what is relevant in any subject matter. Finally, educational psychology in relation to the South will be discussed. The further issue of the risk-factors associated with cognitive and behavioral outcomes in the Southern context will also be investigated.

Martin Woodhead (1999b) has argued that to explain the effects of work on the psychological aspects of development by means of the mechanistic model of cause and effect is less appropriate than seeking to explain more physical trauma and injuries. Whether young people are affected positively or negatively by their work experiences depends on their personal vulnerability, which is in turn mediated by the economic, social, and cultural context of their work, and especially by the value placed on their economic activity and the expectations for their development and social adjustment.

In the field of psychology the individual child has been seen as one centre of research. The social and cultural context have been seen as the environment in which a child develops. There have been critiques of psychological accounts of child development of childhood both in the United States (see Bronfenbrenner 1979, Kessen 1979, Kessel & Siegel 1983, Walkerdine 1990) as well as in United Kingdom (see for example Richards 1974, Richards & Light 1986, Burman 1994, Morss 1990, 1996), which have centered on the demand of taking more into consideration the cultural and social context. For example, Martin Woodhead (1990) has argued for a more explicit, culturally sensitive perspective on childhood. More recently, Erica Burman (1994) has criticized developmental psychological research. She reconstructed the developmental psychology and showed that it has a Northern, or Western value base and that it depends on normative data. Furthermore, she argues that it contributes to the maintenance of the social formation which gave rise to it.

However, the idea of social *constructionism* has a long history in psychology (see for example Zuriff 1998, Martin & Sugarman 1997). The way we construct our views, for example towards child labour, is done socially together with other actors in the field.

Cultural background, and particularly educational level, can affect the individual's performance in psychological and neuropsychological tests. John Berry (1971, 1979) has emphasized that ecological demands and

cultural practices are significantly related to the development of perceptual and cognitive skills. John Berry and colleagues (1995, 1) used the term *culture* to refer to the "shared way of life of a groups of people". Research into cross-cultural cognitive psychology has shown that cultural background has very critical implications in terms of language, perception, memory, and logical reasoning (Laboratory of Comparative Human Cognition, 1983). In the Nepalese population under investigation it was found that cognitive skills were distributed, both in the school and carpet groups, in a Bell-curve manner (Alaraudanjoki et al., forthcoming). This supports the assumption of the universality of certain neurocognitive functions, in any given population, if the tests are culturally relevant.

Universality and the relativity of human development will be discussed next. The cultural-relativistic approach to child labour in its extreme form is *non-acceptable*. While it is true that the way children's immediate social and cultural environment values children's participation in working life affects how children perceive their work, it is not acceptable to let them work in a context which, for example, affects normal growth or is associated with pathological problems (Woodhead 1999b). Jerome Kagan (1977) noted that while the 'useful child' could confirm his or her sense of value by making a material, visible contribution to the family's well being, for the economically 'useless child', self-esteem depends primarily on psychological qualities. Such children may be unsure about their worth and overly depend on expressions of parental love for self-validation. This view has received partial support from the work of Mary Engel et al. (1967, 392–404) who found in the USA that part-time jobs not only had any negative effects among boys between ten and fourteen years of age, but they also gave them a feeling of competence and personality development.

Only a few psychological studies on working children have been published. They have, similarly to those by anthropologists, mainly investigated the more visible *street children* (Aptekar 1988a, Aptekar & Stoecklin 1997, Carraher 1987, De Oliveria et al. 1992, De Souza et al. 1995, Felsman 1981, Ghosh 1992, Grando 1988, Jansen et al. 1990, Monteiro et al. 1998, Noto et al. 1997, Saxe 1988, Tyler et al. 1992, Veale & Adefrisew 1993, Woodhead 1998, see also page 180 below).

In short, both of the basic underlying assumptions of the *modernization* theory (the unidirectional change hypothesis and the conversion hypothesis, see page 166 above) have been questioned, and Çigdem Kag-

itçibasi argues (1996, 105) that "the main shift in the world with socio-economic development is not toward the model of independence but toward the model of emotional interdependence", which is typical in the more developed/urban areas of the South with their cultures of relatedness, and their collectivist culture base. The core of Kagitçibasi's model of emotional interdependence is that while individuals and families adopt more independent attitudes in the economic domain of life, they continue to preserve emotional ties, or interdependence, and thus collectivist values prevail.

School learning is more conducive to generalization and transfer to new learning situations (Laboratory of comparative human cognition 1983, Scribner & Cole 1981, Segall et al. 1990), though some higher level everyday cognitive skills are also transferable (Carraher et al. 1987, Carraher et al. 1993). Moreover, schooling is often more instrumental than traditional skills for advancement in changing societies (Kagitçibasi 1996, 110). There is much evidence indicating that formal education has far-reaching long-term effects, such as later age at marriage, lower fertility, lower infant mortality, and better nutrition/health of future children (Caldwell 1979, 1980, Cochrane & Mehra 1983, LeVine 1983, see also page 169 above). In addition, there are the obvious benefits such as better literacy skills and higher levels of employment.

Psycho-social risk-factors in the South

Research in developing countries has contributed to expanding the definition of *risk factors* associated with cognitive and behavioral outcomes to include *nutritional intakes* (Grantham-McGregor et al. 1991, Husaini et al. 1991, Pollitt & Gorman 1994, Pollitt et al. 1993, Waber 1981, Wachs 1993), *anthropometric status*, e.g., height, weight, (Sigman et al. 1989), and *health*, for example, infection (Neumann et al. 1991). Moreover, the other risk factors cited in Sameroff, Seifer and Bartko (1997) include a history of maternal mental health, high maternal anxiety, parental perspectives that reflect rigidity in the attitudes, beliefs, and values that mothers have in regard to their child's development, few positive maternal interactions with the child observed during infancy, minimal maternal education, head of household in unskilled occupation, disadvantaged minority status, single parenthood, stressful life events and large family size. Against this background, it is likely that the children of this study working in the

carpet industry are in a special risk group with four or more risk factors affecting their development.

Malnutrition

The development of normal potential is by and large affected by the so called *Poverty pentad*: malnutrition, disease, toxic agents, perinatal injury, and lack of intellectual/social stimulation (Brown & Pollitt 1996). These largely represent environmental influences and refer to preventable or modifiable occurrences. The list does not include influences that are clearly genetic. Moreover, Cravioto et al. (1966) have pointed out that their effects are perpetuated in the next generation. Many of the factors in this list have most likely been present in the development of the children in this study.

Poverty-related malnutrition and lack of medical or education services particularly in relation to the intellectual development of the children in developing countries are of interest. Poverty-related malnutrition and lack of schooling opportunities are the main causes of the delayed intellectual development of children living in the Southern countries. Malnutrition is the most important single factor causing health problems in children. Traditionally, malnutrition has been attached to extremely low weight, weight loss, stunted growth, weakened resistance to infection, and in the worst cases early death. The levels of malnutrition are severe, moderate and slight undernutrition, which are determined from the weight/height*height-index. The lack of certain micro-nutrients in food have different outcomes for health. The lasting effect of food deprivation in early life limits long-term intellectual development, and thus can disrupt a child's cognitive development. Today, the effects of malnutrition on delayed intellectual development are seen as a complex and multifaceted phenomenon (for details see Pollitt 1995). Recent studies have yielded new information on these processes, and these will be discussed below.

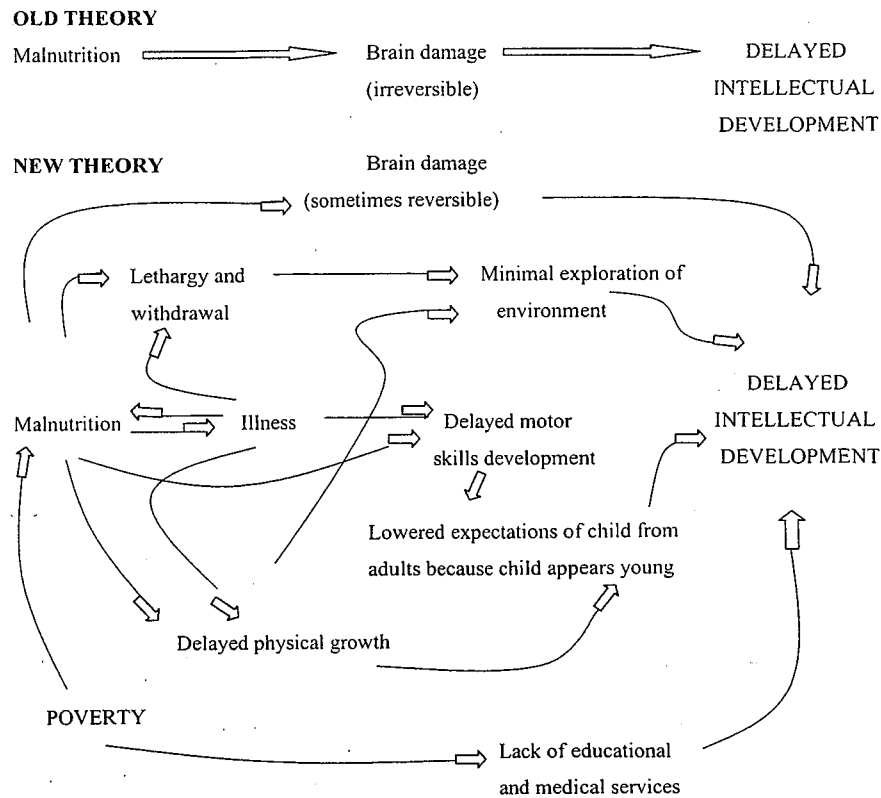


Figure 1. Relationships of poverty and delayed intellectual development (Brown & Pollit, 1996).

In their review of this field Larry J. Brown and Ernesto Pollitt (1996) came to the following conclusions. First, the findings implied that cognitive disability in undernourished children might stem in part from reduced interaction with other people and with their surroundings. Second, there is the possibility that malnutrition leads to brain damage (which can sometimes be reversible). Third, poor nutrition in early childhood can continue to hinder intellectual performance into adulthood. Fourth, learning capabilities are affected by how recently one has eaten. Thus, breakfast every day before school is important—particularly among children at risk for undernutrition. Fifth, studies suggest that there is a close association between iron-deficiency and motor skills in children. Finally, children with iron-deficiency are more susceptible to lead poisoning, which in turn produces its own set of neurological disorders that interfere with cognitive development.

Factors such as income, education and other aspects of the environment can apparently protect children against the harmful effects of a poor diet or can exacerbate the effects of malnutrition (Brown & Pollitt 1996). Elsewhere it has been found that the strongest effects of high-protein supplement were observed among those at the low end of the social and economic ladder. However, adequate nutrition could not by itself fully compensate for the negative effects of poverty on intellectual growth (Pollitt et al. 1995). Although one should be careful in making cross-cultural comparisons, Cruz et al. (1993) found in the San Pablo Ecuador Project that the greater the degree of malnutrition, the poorer was the vocabulary score as measured by the Peabody Picture Vocabulary Test. There did not appear to be any gender differences. However, this result should only be seen as a one illustrative outcome of the more general effect of malnutrition.

Recently, Barry Bogin (1998) has discussed the evolution of human growth and development. He emphasized that the growth spurts at mid-childhood and adolescence occur earlier, on average, for girls than for boys.

Typically in Southern country populations, growth starts to falter at the age of three months and it is significant by eighteen months (Unicef 1993, Martorell et al. 1995). A longitudinal study on Indian boys from Hyderabad, India, conducted by Satyanarayana et al. (1986) suggests that the role of early nutrition is significant for later adult size. Poor nutritional status in early life results in stunted growth. Children became stockier, i.e. shorter but not lighter. In addition, there seemed to be a cumulative effect depending on whether or not a child worked outside the family; if s/he did the result was significant growth deficits. Similarly, Catherine Panter-Brick et al. (1996) found out that 1) the Nepali 'children of the street' who are without stable shelter or adult care-givers showed fewer signs of impaired growth than either the squatter or village boys, both of whom lived at home with their families; 2) the duration of street-life in Kathmandu had no effect on either the levels of stunting or wasting; 3) and the homeless boys who had been living on the streets for less than one year were taller for their age than the village controls.

One might ask how specifically these health hazards affect child workers in comparison to adult workers? There is no easy answer, but they may interrupt, for example, the growth process of the children and lower children's general resistance to illnesses. In addition, children are obliged to

use tools which are designed for adult use, and this might cause injuries and restrain their physical development.

The working setting in the carpet industries in Nepal is mainly factories, whereas in India carpet production is scattered in private homes. Hence, the occupational hazards found in the Indian carpet industries might be more spread among the workers. (See for more Das et al. 1992.) The hazards identified in their study included a persistent cough with expectoration, backache, and the common cold and joint pains occurred more often in the weaver population than in the comparison group.

Methodological considerations in studying working children

Judith Ennew (UNICEF 1999) has noted the topics which need more conceptual and methodological work. These include children's participation, the health hazards of child work, and the macroeconomic environment of child labour. She emphasizes the importance of studying the length of exposure to hazards at particular ages and stages of development. Compared to street children, it is more difficult to study children working in more hazardous industries because of resistance from employers, parents and the children themselves. The more unacceptable the situation, the greater is the resistance. In addition, the time taken by tests for research is likely to be regarded as lost income by both children and employers (for details see Burra 1995).

Bearing in mind that the existing international conventions solemnly rely on the outcomes of political processes rather than on actual facts from scientific research, there are a number of non-scientific research attempts either for *advocacy* purposes or *programming and welfare* purposes (for more see Ennew & Milne 1997). Recently, Judith Ennew (UNICEF 1999) has argued that "the most useful framework in the field of child work and child labour is the typology of child activity patterns proposed by Gerry Rogers and Guy Standing in 1981, which sidesteps the problem of distinguishing between child work and child labour by looking at different economic activities of children within the total range of activities of childhood". This has the advantage of avoiding normative, or culturally relative, definitions of harmful, hazardous or intolerable child labour.

Michael Vlassoff (1991) has recommended the use of the educational system extant in the survey area. In his view, it should be used in deciding the age groups of the children: once the children have completed the number of years of schooling normally available to the average household, the fact that they have little to do except work after this point may mean that further educational opportunities are simply not available rather than their labour contributions are indispensable.

Ben White (1996) has presented an alternative approach which places types of work on a *continuum*, with the most harmful and extreme at one end, and the least harmful (and possible even beneficial) at the other. The most recent attempt to tackle the definitional problem at hand has been suggested by Jim McKechnie and Sandy Hobbs (1998) in their *balance model* which takes into account the cost/benefit variables and acknowledges the context where the work is being done. The basic benefit of the balance model is that by employing the model it is possible to get a clearer operational definition of what constitutes the cost or benefit of employment. They argue that a number of specific variables will need to be studied, such as the number of hours worked, the type of work being done, the working hours, gender, and age. The proposed advantage of this model is that all of the variables, those within the balance and the variables that may influence the balance, can be investigated, operationalised, and clearly defined. This model also has a degree of flexibility in that it can acknowledge that the context will play a role in defining the balance itself; that balance does not exist in a vacuum. By context this model refers to social, developmental and cultural factors (McKechnie & Hobbs 1998). Ultimately, it is the cultural context which defines the variables to be included in the balance equation. Even if there are no universal criteria to conceptualize the issue of children's economic participation, McKechnie and Hobbs agree with Woodhead's (1999) argument that "attending to the context does not preclude the application of external criteria to identify what is beyond acceptability. Any experience which, for example, affects normal growth or is associated with pathological problems must be taken into consideration".

Although Prout and James (1990) emphasize that research on children's perceptions of the world lies in the present, it might be valuable to look how these show *future-orientation* in different cultural contexts. Jari-Erik Nurmi (1991) suggests that the three processes thought to be important in adolescents' orientation to the future (goal-setting, planning, and evalua-

tion) may already exist in interaction during which parents tutor their children to solve problems and carry out tasks. However, the development of future-oriented motivation, planning, and evaluation is a complex, multilevel, and long-lasting process. Nurmi points out three aspects which, I think, are relevant also in the context of the Nepalese working children. Firstly, future orientation develops in cultural and institutional contexts: normative expectations and knowledge concerning the future provide a basis for future-oriented interests and plans, and related causal attributions and affects (Nurmi 1989). Secondly, interests, plans, and beliefs concerning the future are learned in social interaction with other people. Parents, in particular, but also peers influence how adolescents think about and plan for the future (Kandel & Lesser 1969). Thirdly, future orientation may well be influenced by other psychological factors, such as cognitive and social development. The present study seeks possible interactions on the last point.

How do patterns of future orientation vary cross-culturally? Despite the differences in future orientation of adolescents they all seem to think about their future work and education. Nurmi (1991) found in a review of the literature some consistent cross-cultural differences: adolescents from Anglo-American cultures are relatively more interested in leisure activities and personal happiness, adolescents from countries with a high rate of urbanization seem to be relatively more interested in their future education and career, whereas adolescents from traditional cultures are most concerned about topics related to their parents' family. He also noted that in traditional societies such as India and Mexico the parents and the family participate in the planning of adolescents' future to a greater extent than in Anglo-American cultures.

The present study on Nepalese children working in the carpet factories, which will be discussed below in more detail, suggests three psychological domains where the development of participating children are set against, cognitive and socio-emotional development together with a more social psychological dimension. (See Table 1 below.) Hence, it is possible to cover a wide area of psychological functioning in a short time. The methodology will be evaluated in the near future and the results published. Because of the lack of the studies on children working in the occupations classified as worst forms of work for children, the results from the street children studies will be summarised next.

Main findings in street children studies

I shall now outline the main findings from the research on *street children*. Often it has been assumed that starting work at an early age has detrimental effects on children's development (e.g. Bequele & Boyden 1988, Fyfe 1989, Marcus & Harper 1996, Myers 1991, UNICEF 1997). Recently Catherine Boidin (1995, 23–70) had also identified the risk factors affecting the psychosocial and social development of child workers. However, there is an increasing number of findings which suggest that work at an early age may also have positive effects on children's development (see, for example, Aptekar 1989, Engel 1967, Kagan 1977, Morrow 1992, Panter-Brick et al. 1996, Whiting & Whiting 1975, and Woodhead 1998). It has also been shown that such children see their work as an inevitable and necessary part of growing up, as contributing to their family and their future prospects. Furthermore, street children seem to develop arithmetic skills that approach school level, show better nutritional status and are taller than slum dwelling and rural non-working children. In addition, they have better mental health than their poorer counterparts, a positive self-esteem and a strong internal locus of control, and also demonstrated the Eriksonian developmental characteristics of initiative, industry and positive identity.

Need for scientific knowledge

There is a lot of research on child labour in relation to street children. Much of this research is not scientifically on a solid basis and it suffers from a lack of rigor in planning. Furthermore, there is also a lot of repetition, especially among the Non Governmental Organisations who often use the same databases. Therefore, more research is needed in this field.

For future research in the field of child labour Judith Ennew (UNICEF 1999) lists the following areas as of interest: child domestic workers, soldiers, commercial agriculture, the work performed by child nomads, child sex workers, and children involved in trafficking human beings and drugs. She urges researchers to look at the multitude of economical activities in childhood, not just in specific and sometimes relatively rare occupations. In addition, the framework by Gerry Rogers and Guy Standing (1981) could serve as a basis for this research. The recent more focused models of children's participation in working life could further guide this work (see page 178 above).

Several questions arose from my review of the literature in this field:

1. What kind of knowledge is needed when aiming at the overall development of Southern societies?
2. To what extent can the *risk-factors* identified in the North be used to evaluate the risk-factors present in the development of normal potential in the South?
3. What criteria should be used in selecting an appropriate *level of analysis*, for evaluating the impact of selected actions during policy implementation? This requires good judgement and knowledge about the social and cultural context in question.
4. How is it possible to improve both the adults' and children's *education* in order to reduce child labour?
5. What work is harmful for children's development?
6. Owing to a lack of studies and knowledge about working conditions in different fields, the question remains as to what might be the *occupational health hazards related specifically to child labourers*? It is necessary therefore to establish and develop data collection practices which aim at gathering child-centered information. Furthermore, there is a need for the better utilization of existing databases and their recalculation from a child-centered viewpoint.
7. What are the *effects of malnutrition* on the development of human potential, especially on cognitive skills?
8. How well does the ILO's Psychosocial Health Assessment Screening procedure cover the issues raised in this review?

Answers to some of these questions will be proposed in the conclusion below. I will now (briefly) report on my ongoing research on children working in the carpet industry.

Field study on Nepalese carpet children

The aim of my ongoing study is to investigate whether the children working in the carpet factories in the city of Kathmandu differ from children

who live in the countryside, help their parents in their livelihood before or after the school day and go to school. Originally, the interest of the study was to study the *effects* of work on the working children's development, but high mobility of the subjects due to piece-rate production led to the adaptation of a cross-sectional approach, which can only provide a sophisticated hypothesis on this issue, and not a definitive measure of outcome. The study focuses on the social-emotional and cognitive development of these children, investigating the impact of several factors on socio-emotional and cognitive development, such as working conditions and lack of education. A particular concern is the children's cognitive skills, locus of control, self-image, anxiety, fears and future orientation. Assessment of their psycho-social health was done by the use of the ILO *Psychosocial Health Assessment screening procedure*, the methodology of which has been compiled by Judith Ennew (1994) (Table 1). The data, 275 children ranging in age from ten to fourteen years old, were collected in 1996–97.

The basic assumption underlying the procedure is that there is little point at the moment to compare child laborers cross-culturally because there are no international standards as to what is good emotional and intellectual functioning. Moreover, in the absence of suitable national norms for child workers, there is a need for a control group of non-workers of the same socio-economic and ethnic status. The closest we can come is to compare working children with non-working children *within* a particular society, or to compare children who are working in especially hazardous industries with those who are not (Ennew 1994).

The procedure used in my ongoing study was one in which the data collection was accomplished in the Nepalese language by Professor Murari P. Regmi and four Nepalese final year MA students (see endnotes), one woman and three men, from Tribhuvan University. The data on the girls were mainly collected by the female student. The data collection site for the children attending school was decided after it became evident in the pilot phase that the majority of the working children came from Nuwakot District. In the same way as the data collection, the related analysis and reporting of the results is being done in collaboration with the Central Department of Psychology, Tribhuvan University, Kathmandu, Nepal.

Table 1. ILO Psycho-social Health Assessment Screening procedure, compiled by Ennew (1994).

Tests and interviews	Testing	Time minutes
1. Bender Visual Motor Gestalt test	Visual-constructive skills	5
2. WISC-R: Arithmetic and Digit Span Verbal fluency	Attention and short term memory	15
3. Koppitz Draw-A-Person test	Linguistic fluency	15
4. Locus of Control	Overall intellectual and cognitive skills	10
5. Sentence Completion test	Sense of powerlessness, self-responsibility	20
6. Richmond Anxiety test	Anxiety and stress	10
7. Three Wishes test	Anxiety	40
8. Vocational choice	Self-esteem, life satisfaction, future orientation	5
9. Semi-structured interview	Most preferred, least and undecided	10
10.	Loneliness, coping, health, sex abuse, Observationwork place ecology, powerful person	15
11.	Appearance and manner	3
Total time:		2 ½ hours (Approx.)

Access to the working children was obtained through one of the ILO Action Programmes. The children were met by the interviewer at least once before the first of two sessions took place. An informed consent was negotiated. The children working in carpet factories were interviewed and tested during the time reserved for participation in non-formal education (NFE) classes either at their work places or at the Children's Rehabilitation Center run by the NGO and funded by the ILO. The children attend-

ing school were studied on their school premises. The average duration of the assessment was two and half hours.

The assessments of the working children took place either in the ILO's Rehabilitation Centre in Kathmandu, where children stayed on average forty five days before being guided further, at the carpet factories during the NFE classes. The carpet children did not have to justify their participation in the assessment-sessions to their employers since they were already enrolled in the NFE classes, where they had been on average two months. In addition, the interviewers met the children at least once before they were assessed, and the assessment often occurred in open spaces where the child could maintain eye-contact with their peers from a distance. Pareek and Rao (1980) has found the latter procedure efficient in collectivist India to reduce test anxiety, especially among rural populations.

Work and living conditions of the Nepalese children

Perhaps owing to the high rate of infant mortality and difficult living conditions, Nepalese families are culturally more inclined to adopt a *paediatric*, versus pedagogical, model of parenthood (see LeVine et al. 1994). The paediatric model's primary concern is with the survival, health, and physical growth of the infant. Children also have a strong sense of duty towards their parents in collective societies, and they want to help them. There are also migrating families who are adapting to a new environment and struggling for existence. In Nepal some children have been either sold or given to a contractor as security for loans taken by their parents. The latter is known as *bonded labour* according to the United Nations (ILO 1998). Furthermore, in Nepal there are also children who have run away from their families with or without the consent of their parents. Consequently, it is part of the normal growth process in Nepal for children to work at home with their parents, even if they are attending school.

The children working in the carpet factories have from a very young age most likely suffered both from malnutrition and lack of schooling. In addition, working conditions in the factories further increase the number of risk factors present during their early development. The health hazards of the carpet factories include bad ventilation of working areas in which wool fluff is highly present, insufficient lighting, inadequate toilet facilities, and ergonomic risks due to repetitive work tasks and static working positions. Therefore, working conditions in the carpet industry may cause

child workers emotional blunting, boredom and dullness, leading to delayed social and intellectual development. The results of this study are expected to be published in the near future.

Despite the fact that the caste system was abolished in India in the 1960s, it continues to function in practice. The practical implications of the abolition of the caste system enabled access to schooling for the so called untouchable castes. At the same time the caste system still rules societal life in South Asia. Conditions in Nepal resemble those of India with respect to the caste system. Moreover, economic development in Nepal has not been such that it would have enabled the provision of education to all. Basically, the 'two-stage' society of India can be used to describe the Nepalese society as well. However, the Buddhist Tibeto-Mongolian population forms a large minority, which is not part of the Hindu caste system as such. Government efforts, both in India and Nepal at policy level, have brought in some changes in the forms of grants and quotas for the under-privileged. Thus these societies are slowly changing.

In order to give a rough picture of the living conditions in Nepal, some descriptive statistics are in order. According to UNICEF (1998), the basic human needs of most children in Nepal are not being met. Infant mortality rates are high (82/1,000). On average, slightly more than 71% of the population has access to safe water (urban 93%, rural 68%). Around 40% of young children growing up in Nepal have not been fully vaccinated against polio, tuberculosis, DPT, or measles. With more than half of the adult population unable to read (41 % literacy for males, 14 % for females) and only 52 % of children reaching grade five, illiteracy rates are high. The Gross National Product (GNP) in Nepal is 200 USD per capita, in comparison to 390 USD in South Asia and 350 USD in the Low Income countries of the world. Document *Human Development in Nepal 1998* published by the United Nations Development Programme (UNDP, 1998) gives Nepal's Human Development Index (HDI, based on 1997 data) as 0.351, which indicates that Nepal belongs to the "Low Human Development" group with a overall ranking of 152 out of 174 countries. In addition, life-expectancy at birth is 56 years and the Education index is 0.37. Hence, within the Low Income countries Nepal belongs to the middle group, with most of the countries below that figure situated in Sub-Saharan Africa.

Problems and limitations of the ongoing study on Nepalese child labourers

Some of the problems of studies of this type include the inaccessibility and "invisibility" of working children, cultural aspects in relation to the methods used, and limitations of both time and resources. It seems that without institutional support, as in our case the ILO, studies are virtually impossible. An additional limitation in relation to methods involves the question of time. The total duration of data collection per child two and a half hours, which made it possible to collect data relatively quickly. It would not have been possible to have used a larger methodological package. The *Psycho-social Health Assessment Screening procedure* used made it possible to cover a wide area of psychological functions in a short time. This was preferred over an extensive survey of working conditions and the work environment. The results can be generalized to Buddhist Tibeto-Mongolian Nepalese children who are either working or attending school.

Conclusion

The aim of this paper was twofold. First, the value of children's participation in working life in the Southern contexts and particularly in Nepal was discussed. The second point of interest was to assess the theoretical possibilities of the psychosocial health assessment screening tool used in answering the questions raised in the recent literature on child labour. Hence, a multi-disciplinary review of the literature was carried out. The value given to children's participation in working life in Southern contexts depends on the degree of socioeconomic development of the particular country in question.

Culture as a context refers to the shared meanings among a particular group of people who have a common way of life. Moreover, people in the same culture can be active members of a number of different contexts. The conclusions below include a discussion of the effects of modernization, regulation of working life, the nature of the data available on child labour, and evaluation of the methods used in the light of the literature review.

In poor countries where children work from a young age *utilitarianism* prevails as a major attitude towards children. One basic 'truism' of mod-

ernization seems to be the transformation of collectivist values towards individualistic Western values. Recently, Çigdem Kagitçibasi (1996) has criticized this view arguing that the main shift in the world with socioeconomic development is not toward the model of independence but toward the model of emotional interdependence, which is typical in the more developed/urban areas of the South with their cultures of relatedness (collectivistic culture base). The core of her model of emotional interdependence is that while individuals and families adopt more independent attitudes in the economic domain of life during the modernization process, they preserve emotional ties, or emotional interdependence. Thus collectivistic values tend to prevail despite socioeconomic development. From the children's point of view modernization with socioeconomic development leads to wider access to schooling and increased urbanization. In addition, as long as socioeconomic development has not reached a sufficient level the necessity of children to participate in working life remains inevitable. Hence, as modernization proceeds with claimed socioeconomic development the question of child labour is affected by the availability of both education and health services. These services have indirect effects in changing attitudes, mainly those of parents, towards children's participation in working life.

The regulation of children's participation in working life involves the classification of what constitutes harmful work in children's development. International efforts to identify possible hazardous fields of work have generally relied on political decisions based on accumulated experiences in the various activities. The major problem in this task has been the lack of scientific research on the effects of work on working children. The bulk of the research has been cross-sectional, and often, if they were not case studies, they used the same sources of data. The result has often been repetitive studies without any attempt at a more rigorous analysis.

My ongoing study on carpet children has connections with a variety of social institutions. Its scientific significance lies in examining for the first time the effects of work on working children by using a systematic procedure. Briefly, the present study is, of necessity, cross-sectional owing to a particular characteristics of the subjects – their high mobility. Piece-rate production in the carpet industry in Nepal is an obstacle to children's schooling because it demands continuous work to meet the deadlines set for production. Migration due to poverty and increased modernization in Nepal has had the effect that gradually people from rural areas end up in

the Kathmandu valley. However, many of the children who work in the Nepalese carpet industry have been recruited directly from the countryside through middle-men, or they have migrated with their parents.

My study is, however, among the first attempts to analyze the psychosocial development of children who work in a field classified as among the worst forms of labour. A cross-sectional study does not provide causal explanations but can help us to understand the development of working children, and generates hypotheses for future research. Moreover, the study is an example of an action taken within the human rights movement. More specifically, the results of the study can be applied in the planning of action programmes by the various organizations promoting the rights of the children on both the national and international level, the ultimate aim being the abolition of the worst forms of child labour.

Research in the field of cross-cultural psychology has been criticized for exporting methodologies developed in the North to the South. In this paper the author has tried to contextualise the methodological pattern used. It has been developed for global use so that trained psychologists are not needed to administer the tests, although some knowledge of social science methodology is highly recommended. For example, research and interview techniques in the social sciences ought to be understood when conducting research of this type. While analyzing the results trained psychologists should be consulted. In comparison to the research discussed in the literature review the methodology we used seems to be appropriate in the context of studying working children. In addition, the three themes of the screening procedure will be investigated in more detail in future. The paradigm used follows the recommendations according to which research in the South should be policy driven, with the aim at improving the societies involved. Funds for basic research in the developing countries ought to be targeted only after systems have been developed to support indigenous socioeconomic development.

There are a number of groups of child workers and related topics that have been under-researched. These include a number of children who work as domestic workers, as soldiers, in commercial agriculture, in the sex industry or who are involved in trafficking human beings or drugs. The proportions of these children may be higher than those more researched children who obtain their livelihood from the streets. Hence, resources ought to be targeted to study and improve the lives of these children who are working in potentially the worse kinds of work.

In this paper I have tried to present some of the contextual issues which are relevant in the present study. The institutional arrangements needed when conducting research on child workers, and applying the results were considered. The methodological considerations, including the evaluation of the instruments used in this kind of study were taken up. I focused on the research practices and findings in studies of child labour in various fields. From the policy viewpoint, it is perhaps more important to reduce the number of possible risk factors present in the working children's environment, rather than try to map the resilience factors enabling individuals to endure arbitrary living conditions.

It is the responsibility of researchers to take an ethical standpoint and explicate the procedures used when studying working children. A lot of rhetoric has been produced in discussions about the harmfulness of child work, but very few facts. Perhaps the greatest merit of this kind of research is that it produces information about the possible health hazards of working at young ages. However, work may have positive outcomes for youngsters as well, and it is our duty also make clear the possible benefits.

The participation in this study may have increased the self-esteem of the children, and being interviewed by an adult may more likely have been important life event for the interviewed child, hence increasing the number of the protective factors by one. The importance of the right of children to go to school and to grow up in a secure and stimulating environment has become evident during this study. However, the combination of work and schooling can perhaps secure both life skills and basic education for working children. A longitudinal setting would have helped in establishing causal explanations between work, work environment and psycho-social development, but this was not possible due to the high mobility of most of the children in the carpet industry who work in piece rate production. In sum, I hope that this study will help to generate new research on children's participation in working life. The methods used have been chosen with respect to their global application, and they are aimed to be as culture-free as possible. The research findings can be used to influence governments towards changing existing laws regarding the status and rights of children. This study is among the first attempts in the field of psychology to investigate the effects of work on young children.

NOTES

1. The North – South dimension is used throughout the text, instead of "Majority – Minority World", or "Developed – Developing" (or First – Third World Countries), since developing countries are not getting any closer to the developed countries, and with the collapse of the "Second World", the concept of "Third" does not make much sense.

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ORIGINAL PAPERS

II

COGNITIVE SKILLS AMONG NEPALESE CHILD LABOURERS

by

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Jari-Erik Nurmi, & Isto Ruoppila 2001

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Cognitive skills among Nepalese child labourers

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The cognitive skills of 61 Nepalese 10–14-year-old *working* children with at least 2 years working experience (WE) were compared to two groups of children, *beginners* ($N=29$) with less than 1 year of WE and a *school* group ($N=104$) matched for age and ethnic background. All the children ($N=194$) were tested by the Bender test, WISC-R for Arithmetic, Digit Span, and the Word Fluency test. The main results showed that the school group was better in all the cognitive tests, except for Digit Span Backwards, where the working group had the highest average score. The second main finding shows no major differences in cognitive skills between the beginner and working groups. However, the work experience as such was related to decreasing visuoconstructive skills and improving Digit Span Forward scores. This suggests that work in the carpet factories seem to develop the verbal short-term memory functions of the children, while their visuoconstructive skills decrease by work experience. The third main finding showed that the boys were better in arithmetic skills than the girls when they had long working experience.

Les habiletés cognitives de 61 enfants népalais de 10 à 14 ans et ayant au moins deux ans d'expérience de travail (groupe *Travailleurs*) sont comparées à celles de deux autres groupes: un groupe de *Débutants* ($N=29$) qui travaillent depuis moins d'un an et un groupe *Scolaire* ($N=104$) apparié pour l'âge et le milieu ethnique. Les tests suivants sont administrés à tous les enfants ($N=194$): le test de Bender, le sous-test Arithmétique, Empan des chiffres et Fluidité verbale du WISC-R. Les résultats montrent principalement que le groupe Scolaire est meilleur dans tous les tests cognitifs, sauf le test Empan des chiffres à l'envers (DS Backward) où le groupe *Travailleurs* obtient le plus grand nombre de points. Ils montrent aussi qu'il n'y a aucune différence significative dans les habiletés cognitives entre les groupes *Débutants* et *Travailleurs*. Cependant, l'expérience de travail en tant que telle est reliée à la diminution des habiletés visuo-constructives et à la meilleure performance dans le test Empan des chiffres. Ces résultats suggèrent que le travail dans les usines de tapis semble contribuer au développement des fonctions de mémoire à court terme verbale des enfants et à la diminution des habiletés visuo-constructives. Finalement, les résultats montrent qu'après une longue expérience de travail, les garçons sont meilleurs en arithmétique que les filles.

It has been assumed that starting to work at an early age has detrimental effects on children's development (e.g., Bequele & Boyden, 1988; Fyfe, 1989; Marcus & Harper, 1996; Myers, 1991). For example, Aptekar (1988) showed that the street children had lower intellectual and neurological functioning in comparison to the national average. However, there are findings suggesting that work at a young age may have positive effects on children's social and cognitive development as well (Aptekar, 1989; Panter-

Brick, Todd, & Baker, 1996; Whiting & Whiting, 1975; Woodhead, 1998). Bequele and Myers (1995, pp. 26–27) concluded that "The experience shows that what are detrimental effects have no purely technical solution, and must be resolved by agreement rather than by formula, reflecting realities and cultural values, and therefore differing from place to place".

Recently Boidin (1995) identified the risk factors affecting the psychosocial and social development of child

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This research would not have been possible without the cooperation and assistance from the various agencies aiming to improve the lives of the children who work in the carpet factories of Nepal. In particular, our thanks to all the staff of the NASPEC Children Rehabilitation Center in Nepal who so kindly helped us to identify the children and assisted us in various ways. We are also greatly indebted to the District Officers of Nuwakot District where we collected the data on the school group.

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workers. She asserts that low school attendance rates, fragmented repetitive work, relations between child workers and employers, and the isolation and separation of the child from his family are the main risk factors affecting the development of children who work. Furthermore, different forms of ill-treatment are typically perpetrated on the child worker: under-remuneration, poverty and debt, isolation, being treated as an object, and being without a future that supports the fulfillment of the child's potential may severely diminish the child's possibilities for optimal development. Thus, the major impact of the risk factors on working children's cognitive development seems to lie in the lack of schooling and in very specialized, or narrow, skills learned in many work environments.

The present study focuses on the possible effects of one of the worst forms of work and comparisons of work and school environments on the cognitive development of children who work in the carpet industry.

Most research on working children has been done by anthropologists (see, for example, Baker, Panter-Brick, & Todd, 1996, 1997; Munroe, Munroe, & Shimmin, 1984; Nag, White, & Peet, 1978; Nieuwenhuys, 1994; Panter-Brick, Todd, & Baker, 1996; Reynolds, 1996; Whiting & Whiting, 1975; Wright et al., 1992). Their findings lend support to the value of real productivity for children in contrast to *token* chores. In the classic study *Children of six cultures*, Beatrice and John Whiting (1975) found that child work in farming communities taught children responsibility and gave them a sense of worth and involvement in the needs of others.

Few *psychological* studies on working children have been published. These have mainly investigated the more visible street children (Aptekar, 1988; Aptekar & Stoecklin, 1997; Carraher, Carraher, & Schliemann, 1987; De Oliveira et al., 1992; De Souza, Koller, Hutx, & Foster, 1995; Felsman, 1981; Ghosh, 1992; Grando, 1988; Jansen, Richter, Griesel, & Joubert, 1990; Monteiro, Campos, & Dollinger, 1998; Noto, Nappo, Galduroz, Mattei, & Carlini, 1997; Saxe, 1988; Tyler, Tyler, Echeverry, & Zea, 1992; Veale & Adefrisew, 1993; Woodhead, 1998), and have shown that such children see their work as an inevitable and necessary part of growing up, also as contributing to their family and their future prospects. Furthermore, street children seem to develop arithmetic skills that are near school level, show better nutritional status, and are taller than slum-dwelling and rural children. In addition, they have shown better mental health than their poorer counterparts, positive self-esteem and strong internal locus of control, and demonstrate Eriksonian developmental characteristics of initiative, industry, and positive identity (Abreau & Bishop, 1993; Aptekar, 1988, 1989; Carraher et al., 1987; Grando, 1988; Laserna, 1988; Panter-Brick et al., 1996; Whiting & Whiting, 1975; Woodhead, 1998).

Compared to street children, it is more difficult to study children working in more hazardous industries because of resistance from employers, parents, and the children themselves. The more unacceptable the situation the greater is the resistance. In addition, the time taken by research is

likely to be regarded as lost income by children and employers (see Burra, 1995).

The influence of school on children's development is two-fold. The learning of specific knowledge and skills is a direct effect of classroom teaching (Good & Brophy, 1986). Sylva (1994) emphasized the indirect effects of schooling; she asserts that when schools change pupils' self-concepts, goals, and beliefs about success and social responsibility they are exerting a powerful influence not only on subsequent education but also on employment and community participation in adulthood. In addition, the role of education in children's cognitive development is important. Although one should be cautious of the cross-cultural comparisons, Gorman and Pollit's (1996) findings in their Guatemalan study were in line with empirical findings from the industrialized countries (Rutter, 1979; Sameroff, Serfer, Zax, & Greenspan, 1987; Williams, Anderson, McGee, & Silva, 1990): children's performance declined as the number of risk factors to which they were exposed increased. More important, primary education was observed to buffer the effects of early risk for a subset of subjects. Subjects at high risk who continued in school performed significantly better than subjects with similar levels of risk who had completed fewer than 4 years of primary school. In other words, schooling not only enhances cognitive development but also acts as a preventive measure against some environmental risk factors.

The United Nations (UN) agencies divides working life into *work* and *labour*, where the latter refers to especially harmful or dangerous work (Boidin, 1995). An alternative approach places types of work on a continuum, with the most harmful and extreme at one end, and the least harmful (and possible even beneficial) at the other (White, 1996). In addition, McKechnie, Lindsay, and Hobbs's (1996) *balance model* takes into account the cost/benefit variables and acknowledges the context in which the work is being done.

The UN's International Labour Organization (ILO) has made an effort to develop a screening tool to measure the psychosocial development of working children. The ILO *Psychosocial Health Assessment* screening procedure compiled by Judith Ennew (1994) consists of tests in three areas of psychological development, i.e., neurocognitive development, psychological well-being, and future orientation. Such a screening tool will, it is hoped, enable information to be collected quickly (2½ hours per subject) without the presence of a trained psychologist, a common situation in developing countries. The basic assumption underlying the procedure is that it is not very interesting to compare child labourers cross-culturally because there are no international standards as to what is good emotional and intellectual functioning. Moreover, in the absence of suitable country norms for child workers there is a need for a control group of nonworkers of the same socioeconomic and ethnic status. The closest we can come is to compare working children with nonworking children *within* a particular society, or to compare children who are working in especially hazardous industries with those who are not (Ennew, 1994). The above-mentioned ILO screening tool

was administered 1996–97 in Nepal in order to examine the possible adverse effects of work on carpet children.

Poverty-related malnutrition and lack of schooling opportunities are the main causes of the delayed intellectual development of the children living in the developing countries. Malnutrition is the most important single factor causing health problems in children. Traditionally, malnutrition has been attached to extremely low weight, weight loss, stunted growth, weakened resistance to infection, and in the worst cases early death. The lasting effect of food deprivation in early life limits long-term intellectual development. Thus, it can disrupt a child's cognitive development. Today, the effects of malnutrition on delayed intellectual development are seen as a complex and multifaceted phenomenon. Recent studies have yielded new information on these processes (Brown & Pollit, 1996; Cruz et al., 1993; Martorell & Scrimshaw, 1995; Mirsky, Anthony, Duncan, Ahearn, & Kellam, 1991).

In Nepal, the basic human needs of most children are not being met (UNICEF, 1998). Infant mortality rates are high (82/1000). On average, slightly more than 71% of the population has access to safe water (urban 93%, rural 68%). Around 40% of young children growing up in Nepal have not been fully vaccinated against polio, tuberculosis, DPT, or measles. With more than half of the adult population unable to read (41% literacy for males, 14% for females) and only 52% of children reaching Grade 5, illiteracy rates are high.

Child work in Nepal is related to family poverty. This is also true elsewhere in the developing countries where children are needed, and required, to work before or after the schoolday, thus participating in the economic activities of the family. Perhaps due to the high rate of infant mortality and difficult living conditions, the Nepalese families are culturally more inclined to adopt a paediatric (versus pedagogical) model to parenthood (see LeVine et al., 1994). The paediatric model's primary concern is with the survival, health, and physical growth of the infant. Children also feel a strong sense of duty towards their parents in collective societies, and they want to help their parents. There are also migrant families who are adapting to their new environment and struggling for existence. There are even children who have been either sold or given to a contractor as security for loans taken by their parents. Such children are classified as bonded labour (International Labour Organization, 1998). Furthermore, in Nepal there are children who leave home with the consent of their parents or run away from their families. It is part of the normal growth process in Nepal for children to work in the home with their parents, whether or not they go to school.

The children working in the carpet factories from a very young age suffer from both malnutrition and lack of schooling. In addition, working conditions in the factories increase the number of risk factors present during their early development. The health hazards of the carpet factories include: bad ventilation of working areas in which wool fluff is present, insufficient lighting, inadequate toilet facilities, ergonomic risks due to repetitive work tasks, and static working positions. Hazardous working conditions

such as these in the carpet industries may thus cause emotional blunting, boredom, and dullness in a child, leading to delayed intellectual development.

The characteristics of the groups, with high mobility of those children working in the carpet industry, led to a cross-sectional study that can provide associations between the conditions where children lived and their cognitive development. The specific research questions were: First, do the children working in the carpet industry differ from the school-going children in their cognitive skills? Second, how do environmental factors, i.e., lack of schooling and working at young age, affect the development of the groups of children in this study? We hypothesized that (1) the school-going children have better cognitive skills in comparison to the children working in carpet industries, (2) memory functions of the children ought to improve with age in all groups.

METHOD

Sample

Three groups of Nepalese children ($N=194$) were studied. The *carpet* children includes both the *working* and the *beginner* groups of children. The cognitive skills of 61 Nepalese 10–14-year-old *working* children with at least of 2 years of working experience were compared to two groups of children matched on age and ethnic background. The *beginners* group consisted of 29 children from carpet factories with less than 1 year of working experience, and the *school* group consisted of 104 children from the countryside who were enrolled in school. The school-going children helped their parents in household chores beside going to school. Ethnically, the children were from Buddhist tribes such as the Lama, Tamang, Magar, and Sherpa. Moreover, most of the carpet children had migrated from the same area of Nepal where the school-going children were living, Nuwakot District, which lies some 70 km to the north-west of Kathmandu. Apart from migration with parents, some of the children working in the carpet industries had been either sold or given to the contractor as an exchange for loans taken by the parents.

TABLE 1
Demographic characteristics of the groups ($N = 194$)

Group	10 years		11–12 years		13–14 years	
	Boys	Girls	Boys	Girls	Boys	Girls
Working ($N = 61$)	5	8	12	7	15	14
Beginner ($N = 29$)	6	4	8	5	3	3
School ($N = 104$)	16	12	22	15	19	20

The length of work experience among the working children was 2 years or more, and among the beginner children it was less than 1 year.

Measurements

The Bender Visual-motor Gestalt test. The test, hereafter called the Bender (Bender, 1938), was administered in this study according to the standard procedure. The Koppitz Developmental Scoring System (Koppitz, 1975) was used in analyzing the Bender protocols. The scoring is based on 30 discrete items in the developmental system, which are scored as present or absent. Each item belongs to one of four different categories of errors: distortion (10), rotation (8), integration of errors (9), and perseveration (3). The total error score equals the Total Developmental Score, which may be compared with age norms, or an age-based percentile rank may be obtained. Persons above the age of 8 or 9 are expected to have few or no errors (Taylor, Kaufman, & Partenio, 1984). The Bender error-type (Distortion, Integration, Perseveration, and Rotation) reliability coefficients were at an acceptable level for all subjects, Cronbach's alpha = .76.

WISC-R. The Wechsler Intelligence Scale for Children-Revised (1974) subtests of Arithmetic and Digit Span were used according to the standard procedure. In Arithmetic reasoning the examiner presents tasks that become increasingly more difficult. In Digit Span Forward the examiner presents the child with a 3-digit number, given at the rate of 1 digit per second. A second 3-digit number is then presented. Next, two 4-digit numbers are given and similarly scored. In Digit Span Backward, the child is instructed to repeat the presented sequence in reverse order. The Digit Span reliability coefficients were at an acceptable level for all subjects, Cronbach's alpha = .81.

Word Fluency test. In the Word Fluency test (Lezak, 1995) the child was asked to recall as many food items (vegetable and fruits) and animals as she or he could remember in one minute.

The raw scores were used in the analyses of all tests.

Procedure

Access to the working children was obtained through one of the United Nations International Labour Office's Action Programmes, run by the National Society for the Protection of the Environment and Children (NASPEC).

The data collection was performed in the Nepalese language by the second author and four Nepalese final year MA psychology students, one woman and three men, from Tribhuvan University. The data on the girls was mainly collected by the female student. The data-collection site for the children attending school was decided after it became evident that the majority of the working children came from Nuwakot District.

The children were met by the interviewer at least once before the first of two sessions took place. The children working in the carpet factories were interviewed and tested during the time reserved for participation in nonformal

education (NFE) classes either at their workplaces or at the Children's Rehabilitation Center run by the Non-Governmental Organization and funded by the International Labour Organization (ILO). The school children were studied on the school premises. The average time taken per child for the assessment of cognitive skills was 35 minutes and the total time was 2½ hours.

The assessments thus took place either in the ILO's Rehabilitation Center in Kathmandu, where on average children stayed for 45 days before being guided further, at the carpet factories during the NFE classes, or in the schools. The carpet children did not have to justify their participation in the assessment sessions to their employers since they were already enrolled in the NFE classes, and had been on average for 2 months. The NFE curriculum consisted of very basic reading, writing, and arithmetic training together with health education. In addition, the interviewers met the children at least once before they were assessed, and the assessment often occurred in open spaces where the child could maintain eye-contact with his or her peers from a distance. The latter procedure had been found useful in reducing test anxiety in collectivist India. The purpose of the study was explained to the children, who all gave verbal consent and participated.

RESULTS

Arithmetic skills

A Group \times Age and Group \times Sex ANOVA with arithmetic as the dependent measure revealed a significant interaction, $F(4, 193) = 2.82, p < .027$; $F < (2, 193) = 3.06, p < .05$, respectively. In the oldest age-group, 13–14 years (Figure 1), ANOVA was carried out and showed significant main effect of group for beginner and working groups in comparison to the school group, who had the highest score, $F(1, 44) = 4.26, p < .05$; $F(1, 67) = 32.43, p < .0001$, respectively, and also in the age group of 10 years the school group was higher than the beginner group, $F(1, 37) = 7.64, p < .01$. In addition, in the school group the girls outperformed boys in arithmetic, but in both the beginner and working children groups the boys were better than the girls (Figure 2). Means for girls in the beginner, working, and school groups were 8.5, 8, and 10.17 (SDs 2, 1.41, and 1.7) respectively. Means for boys in the beginner, working, and school groups were 8.17, 9.69, and 10.60 (SDs 1.47, 1.92, and 2.51), respectively.

Visuoconstructive skills

A Group \times Age and Group \times Sex ANOVA with Bender as the dependent measure revealed a significant main effect of Group, $F(2, 193) = 20.95, p < .0001$. The results showed that the visuoconstructive skills, as measured by Bender (see also below for WISC-R Digit Span Backward), of the beginner and working groups were significantly lower when compared to the school group. Means (error scores) for the beginner, working, and school groups were 12.21,

TABLE 2
Analysis of variance for cognitive skills ($N = 194$)

Test	Source	df	F	p	Eta squared
Arithmetic	Age ^a × Group	4	2.82	.05	.06
	Sex × Group	2	3.06	.05	.03
Bender	Group	2	20.95	.001	.19
Digit Span Forward	Group	2	5.84	.001	.06
Digit Span Backward	Group	2	3.60	.05	.04
Word Fluency	Group	2	78.63	.001	.47

^aAge is classified: 10 yrs, 11–12 yrs, 13–14 yrs.

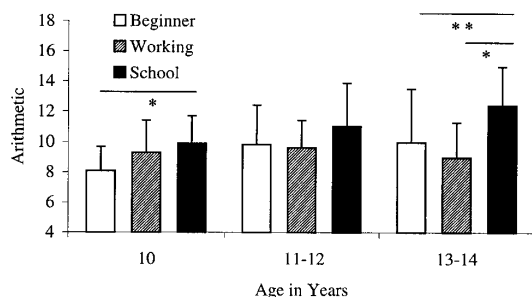


Figure 1. Mean for WISC-R Arithmetic. The raw scores are used. Tukey test significance level between groups, * $p < .05$, ** $p < .01$, *** $p < .001$.

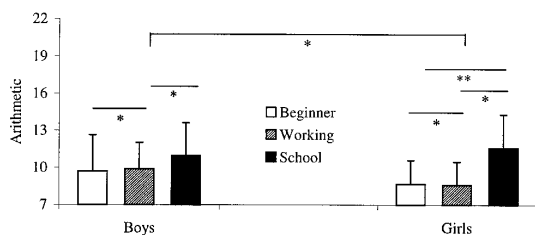


Figure 2. Mean for WISC-R Arithmetic: Group × Sex. The raw scores are used. Tukey test significance between groups, * $p < .05$, ** $p < .01$, *** $p < .001$.

9.84, and 6.06 (SDs 5.44, 5.66, and 4.08), respectively. In short, Table 2 shows that group membership explains a significant amount of the variance in this test.

Furthermore, a group ANOVA with Bender error types Distortion × Integration × Rotation × Perseveration as the dependent measures (see Figure 3) revealed a significant main effect of Distortion, $F(2, 193) = 16.1, p < .0001$; Integration, $F(2, 193) = 23.71, p < .0001$; Perseveration, $F(2, 193) = 34.6, p < .0001$, indicating that children labouring in the carpet factories had more of every Bender error types than the school group, except for Rotation, $F(1, 193) = 2.85, p < .06$, which was nonsignificant. Furthermore, within the children labouring in the carpet factories there were no significant differences in any error types.

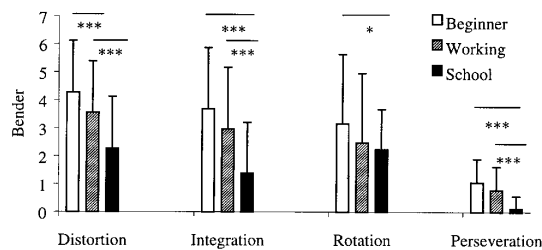


Figure 3. Mean of Bender error types by group. The Koppitz Developmental Scoring System (Koppitz, 1975) was used to analyze the Bender protocols of the children. Tukey test significance level between groups, * $p < .05$, ** $p < .01$, *** $p < .001$.

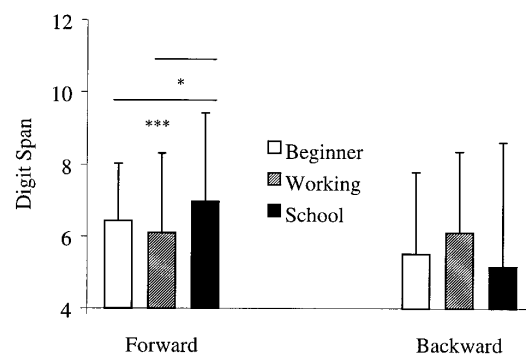


Figure 4. Mean for Digit Span Forward and Backward by group. The raw scores are used. Tukey test significance level between groups, * $p < .05$, ** $p < .01$, *** $p < .001$.

Attention and short-term memory skills

A Group × Age and Group × Sex ANOVA with Digit Span Forward × Digit Span Backward as the dependent measures revealed a significant main effect of group, $F(2, 193) = 5.84, p < .003$; $F(2, 193) = 3.60, p < .029$, respectively. The results showed (see Figure 4) that attention functions of the beginner and working groups were significantly lower in Digit Span Forward; however, the working group had the highest mean in Digit Span Backward, in which some people are known to use visualizing.

Language skills

A Group × Age and Group × Sex ANOVA with word fluency as the dependent measure revealed a significant main effect of group, $F(2, 193) = 78.63, p < .0001$. The results showed that the language skills of the beginner and working groups were significantly lower when compared to the school group. Means for beginner, working, and school groups were 20.83, 21.93, and 38.93 (SDs 5.74, 7.01, and 10.77), respectively. In short, Table 2 shows that group

membership explains a significant amount of the variance in this test.

Living environment

In order to investigate the extent to which the environment, school versus labour, affects the cognitive skills, the correlation analysis of age and work experience on cognitive skills was carried out. On the one hand, the results show, in the school group, a correlation between age and arithmetic, $r = .38, p < .05$; between age and Bender (errors), $r = -.21, p < .05$; between age and word fluency, $r = .30, p < .05$. As assumed earlier, with age, positive development of the cognitive skills occurs in the school group. However, in the beginner group there was no significant correlation between age and the cognitive skills. In the working group the results show correlation between age and Digit Span Forward, $r = -.31, p < .05$; and between age and Digit Span Backward, $r = -.38, p < .01$. These correlations suggest that the attention function of the children with long work experience decreases with age.

On the other hand, in order to investigate the extent to which increasing working experience (*all* children labouring in the carpet factories, $N = 89$) affects the cognitive skills, the partial correlation analysis (age was partialled out) of work experience on cognitive skills was carried out. The results show correlation between work experience and Bender (errors), $r = .35, p < .05$, Digit Span Forward, $r = .30, p < .05$, and Digit Span Backward, $r = -.27, p < .05$. The length of work experience of all the children labouring in the carpet factories was related to a decline in visuoconstructive skills and an improvement in short-term memory skills (i.e. Digit Span Forward). In short, work in the carpet factories seemed to develop the attention and verbal short-term memory functions of the children, while their visuoconstructive skills decreased.

DISCUSSION

The aim of the study was to examine how working influences children's cognitive development. The main results showed that the school group was better in all the cognitive tests, except for Digit Span Backward. The results suggest that work in the carpet factories develops verbal short-term memory and the attention functions of the children but lowers their visuoconstructive skills. The boys were better in arithmetic skills than the girls when they were working. However, the development of cognitive skills among labouring children seems to remain at the level acquired by the age of 10 years. The selection effects could be seen in the Bender and Verbal Fluency tasks, where belonging to the school group was associated with high performance, i.e., low Bender error and high Verbal Fluency scores.

The results showed that working children had a lower but near school-level performance in oral arithmetic, except in the oldest age group (13–14 years) where they had a significantly lower score than the school group.

Moreover, the beginner group differed from the school group in the youngest and oldest age groups (10 years and 13–14 years old). These results are similar to those found among street children in other cultures (Abreau & Bishop, 1993; Carraher et al., 1987; Grando, 1988; Laserna, 1988), who have been found to possess near school-level arithmetic skills despite the lack of formal education. This suggests that children working in carpet factories develop oral arithmetic skills at an early age. However, in comparison to the school group they seem not to develop these skills further, whereas school children continue to learn written arithmetic skills. The better performance in arithmetic of the boys compared to the girls labouring in the carpet factories may be related to the fact that they are given more independent tasks in the factories.

Another explanation of the better performance of the school group in arithmetic could be that there had probably been a high number of dropouts in that group before age 13. The remaining children, especially the girls, have better functioning. In addition, the effect of formal schooling is evident in the older group.

The results suggested that the more working experience the children had, the worse were their visuoconstructive skills (Bender and Digit Span Backward) and the higher was their Digit Span Forward score. However, the working group had the highest mean in Digit Span Backward of all groups. Thus, it is likely that work in the carpet industry develops certain cognitive functions such as attention and short-term memory skills, but that this development is restricted to very narrow field. This can in part be explained by the training effect.

The Bender may be culturally biased since it requires the reproduction of geometric patterns and involves the recognition of three-dimensionality in pictures, which is a skill that needs training (Brislin, 1983; Deregowski, 1980; Hudson, 1960; Osuji, 1982; Segall, 1986). Interestingly, the results for the visuoconstructive skills (i.e., Bender) are somewhat problematic. Advances in clinical neuropsychological diagnostics have questioned the value of the Bender test as a measure of general psychological functioning. Similarly, although we tested the Koppitz criteria for the Bender (mean $> 1 SD$ = impaired), it did not differentiate within the groups, impaired versus well-functioning, in cognitive skills, except for the school group. Therefore, it is possible to conclude that the Bender is more likely to measure a specific visuoconstructive skill rather than neurocognitive functioning in general. In sum, the literate and perceptually trained school group outperformed the groups labouring in the carpet factories in attention and short-term memory functions. However, even the school group had very high Bender error mean, i.e., Total Development score, thus indicating possible cultural bias in this test.

It has been suggested by many researchers that the Digit Span score is affected by educational attainment (Ardila, Rosselli, & Rosas, 1989; Finlayson, Johnson, & Reitan, 1977; Gardner, 1979; Heaton, Grant, & Matthews, 1988). Similarly, in our study the school group had the highest mean on Digit Span Forward. However, the highly illiterate

factory labourers were better than the school group in Digit Span Backward. This may be explained by Gardner's (1979) findings that many subjects resort to visualizing when solving Digit Span Backward tasks. The children working in the factories had developed a natural arithmetical ability and used visualizing as a mnemonic. For example, many of the children used their fingers when doing the arithmetic and Digit Span tasks. In sum, the Digit Span test indicated that the children working in factories had a more focused attention function, i.e., the *SDs* were smaller than in the school group.

One could argue for the benefits of more focused attention and short-term memory skills if a child were to be moved away from this context. During the first author's visit to another rehabilitation centre, the children, who had been there 9 months and had earlier worked in the carpet industry, had been observed by the social workers. They described these children to be the most *dutiful* pupils they had come across. Hence, while they had become "good" pupils it was felt that they would need to learn to play again. In conclusion, the socioemotional development of the children working in the carpet factories might be endangered when working in such of an environment.

The verbal fluency of the *school* group was almost 2*SDs* higher than in both the groups of children labouring in the carpet factories. This raises the question about the ecological validity of this test. On the one hand, it may simply be that the school group had learned the names of the food and animal items in the school. On the other hand, the children labouring in the carpet industry have no access to learning these names.

Our findings in the language domain are similar to those of Baddeley, Gathercole, and Papagno (1998), that Digit Span, especially Digit Span Forward, is related to learning and increasing vocabulary. In our study there was a positive interaction in the working children group and negative interaction in the school group between Digit Span Forward and word fluency.

Studies have consistently shown that educational attainment is a particularly critical factor in verbal tasks (e.g., Ardila & Rosselli, 1988). In fact, verbal abilities, as measured by psychometric intelligence tests, are more educationally dependent than nonverbal abilities. Ostrosky et al. (1985, 1986) found that the items more sensitive to socio-educational level are those that involve the use of complex conceptual aspects of language, as well as the organization of motor sequences and motor programming. This association between educational level and language and motor abilities has been further confirmed (Rosselli, Ardila, & Rosas, 1990). Similarly to Ardila, Rosselli, and Ostrosky-Solis (1992) that school influences verbal tests in particular, our findings support this association, but raise the question of whether full-time work at an early age limits overall cognitive development by restricting the development of specific knowledge and skills to very narrow fields.

Some of the problems of studies of this type include the inaccessibility and invisibility of working children, cultural aspects in relation to the methods used, and the

constraints of both time and resources. It seems that without institutional support, as in our case the ILO, such studies are virtually impossible. Regarding time, the total duration of data collection was 2½ hours per child, which made it possible to collect data quickly. A larger methodological package would not have been feasible. The *Psychosocial Health Assessment* screening procedure used made it possible to cover a wide area of psychological functions in a short time. This was preferred over an extensive survey of working conditions and the work environment. These results can be generalized across Buddhist Nepalese children who are either working or attending school.

Are the assessments used culture-free? The methods related to cognitive skills of this screening tool seemed to function well, apart from the Bender test, which produced a high error mean even for the school group. Although the school group was more used to test-taking, and pencil-and-paper tasks, the carpet children had been participating in nonformal education classes for some time before the study. Thus, they were used to handling pencil and paper to some degree. Limited possibilities for education, work-related self-concepts and goals, and social responsibility towards parents in terms of contributing to the family income may hinder the enthusiasm of carpet children towards schooling (see also Woodhead, 1998). The contextual and methodological issues related to studies of children's participation in working life have been discussed elsewhere (see, for example, Alaraudanjoki, 2000).

Suggestions for future research on child workers' cognitive skills would include: (1) adding a short word, non-word, and sentence reading test, (2) the use of a basic malnutrition indicator (i.e., weight/height × height index), as originally suggested but not used in this study, (3) ascertaining whether the children work with or without their parents, and (4) how many years of formal education a child has.

It is the responsibility of researchers to take an ethical standpoint and explicate the procedures used when studying working children. A lot of rhetoric has been produced in discussions about the harmfulness of child work, but very few facts. Perhaps the greatest merit of this kind of research is that it produces information about the possible health hazards of working at a young age. However, work may have positive outcomes for youngsters as well, and it is our duty also make clear the possible benefits.

The authors agree with Woodhead's (1999) argument that to explain the effects of work on the psychological aspects of development by means of the mechanistic model of cause and effect is less appropriate than seeking to explain more physical trauma and injuries. Whether young people are affected positively or negatively by their work experiences depends on their personal vulnerability, which is in turn mediated by the economic, social, and cultural context of their work, especially the value placed on their economic activity and the expectations for their development and social adjustment. Work may also have positive outcomes for youngsters as well. Similarly, Whiting and Whiting (1975) emphasized the feeling of

responsibility and sense of pride fostered when children are helping their parents, as well as a sense of belonging to their community.

In conclusion, the results are difficult to compare cross-culturally since different cultures may value children's economic contributions to their families income/subsistence differently. Moreover, various jobs require different skills and the skills taught at school are not necessarily those needed in life. However, we *do* see that children benefit from schooling but make the argument that skills can be learned later on in their lives. Hence, while the lack of education is one factor in children's cognitive development, it can also be said that working develops some skills that can later be upgraded to necessary level. We hope that this study will help to generate new research on children's participation in working life. In short, the methods used have been chosen with respect to their global application, with the aim of being as culture-free as possible. The research findings can be used to influence governments towards changing existing laws regarding the status and rights of children. This paper is the first of three attempting to investigate, using a systematic screening procedure, the possible effects of work on young children.

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