Prospects (2015) 45:231–243
DOI 10.1007/s11125-015-9338-1

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Formal, nonformal, and informal learning in rural India: The case of fishing families on the Chilika Lagoon

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Published online: 30 January 2015

Abstract The vast majority—70%—of the Indian population lives in rural areas. They are far removed from India's image as a society with an emerging middle class and well-regarded schools. This research focuses on education and opportunities for skill development for this rural population. The researchers investigated the area around the Chilika Lagoon, a rural region in the eastern state of Orissa, by interviewing fishing families about formal and nonformal education and informal learning activities, and by tracking their children's daily activities to determine educational levels, learning activities, and the demand for education and training. By interviewing students and educational experts from Indian Industrial Training Institutes (ITIs), the researchers also investigated the accessibility and performance of self-help groups and of computer courses and other training programs for fishermen.

Keywords Informal learning · Nonformal learning · Rural India · Orissa · Fishermen · Industrial Training Institutes

India has one of the world's most rapidly growing economies. Its gross domestic product has increased by approximately 6–7% a year over the past few years (Ministry of Finance

The Center of Modern Indian Studies at the University of Cologne (CMIS-UC) funded this research project through the programme "New Passage to India" of the German Academic Exchange Service (DAAD). The authors wish to thank Ajit K. Pattnaik (Chilika Development Authority) for his valued patronage and great hospitality, Christian Boestfleisch (University of Hanover) for his support, and our anonymous reviewers for their very helpful comments and suggestions.

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2014), and the country also has a very young population. By 2022, around 65% of all Indians will be between 15 and 59 years old (Ministry of Labour and Employment 2010, p. 2). If the government can coordinate the supply of and demand for labour, India could become a major player in the global economy. India also has a wide variety of tertiary education, including, for example, the prestigious Indian institutes of technology and Indian institutes of management. However, while currently about 10 million students are in higher education, the country also has almost 228 million school students (Ministry of Labour and Employment 2010), raising the questions: What opportunities will be open to students who do not secure a university place? Does the country have an established vocational education and training system alongside its academic training institutions? These are particularly pressing issues in rural areas, where approximately 70% of all Indians live (World Bank 2012). The Indian government is grappling with a skills gap and has made significant efforts to initiate vocational training structures (for an overview, see King 2012a).

An international comparative vocational education and training research perspective on these issues should, in Hörner's (2000) view, begin by focusing particularly on the "ideographic function", or the "search for what is distinctive". It is essential, he argues, *first* to get to know a system and set it in its country-specific cultural and historical context before suggesting improvements, identifying trends, or seeking to compare specific aspects from different contexts. We intend, therefore, to help readers to better know and understand India's rural educational and vocational training, with a view to assessing how the living standards of the urban population could be improved (Tilak 2006). It is important to stress that "improvement" is not restricted to economic improvement, as King (2012b, p. 4) notes: "There have of course been other politics of skills in India's history, and none more famous than Gandhi's vision of skills-for-all in village India, not merely as a crucial element of Indian self-reliance but also as an essential part of being human".

Specifically, we shall analyze what access young people in rural India have to different types of learning and training—with a particular focus on vocational processes (skill formation)—and what challenges they face. We will, therefore, focus primarily on the perspective of the learner, not on existing course provision (Unni 2011), including the Placement Linked Skills Training Programme for Marginalized Youth, operated by the Ministry of Rural Development (Sharma 2011, p. 55).

To this end, we analyze the educational situation in a selected rural region in Orissa, India, focusing specifically on fishermen's families. With the assumption that learning takes place in different frameworks, we examine formal and nonformal education separately before looking at informal learning.

Formal/nonformal education and informal learning

Conceptually, we draw on the approach of formal education and informal learning, which is recognized in India and internationally. However, we supplement this approach with a third dimension, that of nonformal education, a concept first introduced as far back as the 1960s (Coombs 1968) and now promoted by the Commission of the European Communities, among others, in the context of "lifelong learning". In line with other similar definitions, including that of UNESCO (2012, p. 9), the Commission (2000, p. 8) defines these approaches and the distinctions between them as follows:

> **Formal learning** takes place in education and training institutions, leading to recognised diplomas and qualifications. **Non-formal learning** takes place alongside the mainstream systems of education and training and does not typically lead to formalised certificates. Non-formal learning may be provided in the workplace and through the activities of civil society organisations and groups (such as in youth organisations, trades unions and political parties). It may also be provided through organisations or services that have been set up to complement formal systems (such as arts, music and sports classes or private tutoring to prepare for examinations).
>
> **Informal learning** is a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning and so may well not be recognised even by individuals themselves as contributing to their knowledge and skills.

Beyond these distinctions, we shall not explore discrepancies in definitions and approaches here (see OECD 2007, pp. 3–8) but shall use this tripartite division to analyze the different learning activities engaged in by young people in rural parts of India. (We define "young people" as those aged between 12 and 25 years.)

While the Commission uses the term "learning" in all three of its definitions (above), we underline the difference between formal learning, nonformal learning, and (usually unintentional) informal learning by placing formal and nonformal learning in an education framework. We therefore differentiate between formal and nonformal *education* on the one hand and informal *learning* on the other.

Earlier research in this area focuses overwhelmingly on the distinction between formal education and informal learning, but we shall restrict ourselves here to mentioning recent findings of direct relevance to our theme (for more details on earlier findings, see Krishna 2005, pp. 184–188). For example, Noronha and Endow (2011) interviewed skilled workers in four different occupations in Rajasthan and Madhya Pradesh about issues relating to informal training. Their work brings out the major significance of informal learning in a situation in which the cost of, and loss of earnings arising from, formal and nonformal education are seen as too high in rural areas. It also highlights the importance of transfer of knowledge and skills in family businesses operating in traditional sectors (tailors and murtikars—that is, figure-sculptors or carvers).

Krishna (2005) used five case studies to explore a number of projects in informal learning in northern India, finding in particular "a lack of provision in formal institutions for training workers in the informal sector … a low level of skills in traditional apprenticeships in the informal sector … [and] the weak role of universities and S&T institutions" (p. 210).

Mitra (2002) also used five case studies to investigate NGO interventions in southern India, concluding that empowerment, orientation to the needs of the target group, and employability were key success factors.

Research by the Swami Vivekananda Youth Movement (2011) among 35 masons and tile-layers in Mysore and Bangalore found that informal learning in this sector was based on observation and imitation, instruction by experienced overseers in working processes, and simple trial and error. The study also highlighted the fact that the skill-development process lasted for between three and five years.

Baber (2004) studied learning processes in a garage employing 15 people in a rural area of Darjeeling. In this case, employees received only rudimentary formal education; informal learning was, however, observed to be strongly developed, particularly that of tacit knowledge, though there was a lack of reflection processes.

Methodology

Researchers commonly analyze accounts of participants' daily activities, even though we have to be critical of the latter's objectivity. Participants' best insights arise where they can interpret observed external events by recalling internal experiences: introspection is a more meaningful way to assess data on how people live their lives than observations subsequently interpreted by external observers. In this case, the insights that we gained from analyzing participants' day logs lie particularly in identifying activities associated with informal learning (Kirchhöfer 2000); there seems to be permanent potential for informal learning opportunities on a day-to-day basis. Researchers should, therefore, always support their work with biographical analysis, while, in international studies, they should also give consideration to ethnographic observation (Kirchhöfer 2000).

Against the backdrop of our research purpose's complexity, the difficulties in gaining access to the children and young people concerned, and cultural factors, we selected a multilevel research approach to combine a wide diversity of perspectives and data collection methods. Our research methodology included four elements:

- group interviews with fishing families;
- survey of all daily activities of children and young people from fishing families, tracked through self-written day logs/process-related diaries;
- individual interviews with vocational school students (those studying at ITIs); and
- expert interviews with educational professionals working on the ground.

We selected 3 fishing families from villages in Chilika Lagoon's 4 sectors to represent the different sectors. In a semi-structured format, we interviewed individually a total of 12 two-parent families (with 24 children, including 7 girls). We interviewed both parents and at least 1 of their children, who had to be of working age and able to express realistic intentions regarding their vocational future. We held the group interviews in the villages to ensure a relaxed atmosphere and to facilitate clear and honest responses. For this part of the analysis, we used interpreters. As with any research involving speakers of different languages, we faced the problem that a strong relationship exists between language and personal thoughts or ideas. Moreover, not only are there vocabulary-specific language barriers but also important differences resulting from the interaction between culture and language. Therefore, we carefully selected interpreters and inducted them into the research project and its aims. We recorded all interviews and transcribed the most important sections.

An interpreter helped us conduct the six separate interviews with students at Industrial Training Institutes (ITIs) and Industrial Training Centres (ITCs), while we conducted in English the interviews with six education experts. In both cases, we used very broad interview guidelines and directly documented the findings.

As the intensity of informal learning depends on previous experience, we include the biographical analysis of the young people in the survey. "Informal learning" refers to learning in daily life, at work, at leisure, or within the family. A young person's entire social environment is a potential source of informal learning (Kirchhöfer 2000), and since such learning largely takes place unconsciously, one cannot always identify it through self-questioning. To counter this, we used biographical and/or autobiographical narratives and a close analysis of day logs written by young people on their activities.

We selected one person from each family, who had to be of young working age. We instructed this person to track his/her activities each evening by writing a day log in the local language. We asked the subjects to track their activities chronologically and to

describe specifically what they had learned on that day and how the learning had taken place—that is, what strategies they had used. We had one case study translated into Oriya to boost understanding of the task and to help the young people to identify learning situations and learning strategies, as demonstrated in the work of Kirchhöfer (2000). (An exemplary day log should create awareness of possible knowledge acquisition during an informant's usual daily routine.) We intended the case study to help ensure that informants completed the day log in some detail. After the data collection process, a team of up to four translated the data from Oriya into English. They translated each protocol at least twice to ensure the quality of the translation. From these dozen day logs, we then selected one for each sector of the Lagoon for closer scrutiny. We placed particular emphasis on ensuring that both genders and both the fishing group and the nonfishing group were represented. We then set this closer analysis of four protocols against the remaining protocols.

Socioeconomic and educational background of the fishing communities

Our research focus was a region in northeastern India that is particularly underdeveloped in economic terms and includes a large socially disadvantaged rural population, especially fishing families. Chilika Lagoon, which covers an area of more than 1,100 km^2, is the largest brackish-water lagoon in Asia and home to about 250,000 people in more than 130 fishing villages. This rural region is highly dependent on the fishing industry, in which more than 40% of the population is directly involved (Pattnaik and Kobayashi 2009). Orissa fishermen belong to the Scheduled Caste and are, therefore, a socially disadvantaged group.

Research by the Indian government and UNICEF shows that children from the Scheduled Castes and Scheduled Tribes (SCST) are often malnourished, with malnutrition affecting 25% of children in Orissa. They are also up to three times more likely to be involved in child labour, while more than one third (35%) do not complete the five years of primary education. More than a third of the SCST live below the poverty line (Govinda and Bandyopadhyay 2010).

Females are particularly disadvantaged. School enrolment rates for girls are sometimes up to 60% lower than those for boys. One of the main reasons for nonenrolment, or dropping out of primary school, is that many families do not regard schooling their children as necessary when a family has to be supported. Early marriage also plays a role: many families see education as a waste of money, because dowry payments are still common. Only high-caste families in the bigger cities view training as an advantage in the marriage market (Seymour 1994). Access to school facilities also plays a more minor part: there appear to be enough primary school places in quantitative terms; Govinda and Bandyopadhyay (2010) use the term "silent exclusion" to refer to the impact that school quality has on enrolment rates.

Government measures to counteract these low enrolment rates include the provision of free school uniforms and, especially, a free-lunch scheme introduced in 1995, but adequate funds are often not available for such schemes. SCST quotas designed to ensure places for children from disadvantaged groups in both state and private schools and universities are intended to prevent exclusion by locking young people into the education system from early childhood (Govinda and Bandyopadhyay 2010; Reddy 2012).

The Chilika Lagoon area has enough schools: 85% of all fishing villages have at least one primary school, while 22% have secondary schools, and each of the four sectors (representing 11% of all villages) has at least one college. There are no hospitals in the

Chilika Lagoon, but smaller institutions in almost half of all fishing villages provide basic medical care (Pattnaik and Kobayash 2009). More detailed official socioeconomic data was not available for the region around Chilika Lagoon.

Through our group interviews with fishing families we found that, regarding the economic situation of each family as a whole, families that are members of a fisheries cooperative report much higher household incomes than families who still rely on the typical loan financing model through the informal financing sector, which charges effective interest rates of up to 40%. Fisheries cooperatives have been set up over the past couple of years specifically for this reason.

Formal education among the fishing families

We found a clear and positive development in the educational level of the two generations. With a few exceptions, each family has a history as a fishing family, with parents, brothers, and sisters having always earned their living through fishing. Almost all the parents we interviewed had, therefore, left school at an early age, while seven had never attended school at all; females were less likely than males to have received education.

The current school-age population is quite different. All the children, with a single exception, had at least started school. Moreover, for a rural region, the school infrastructure in the Chilika Lagoon region is quite well developed, so inadequate facilities are not an obstacle to compulsory education, as Govinda and Bandyopadhyay (2010) note for India generally.

However, almost half of the young people interviewed had dropped out of school before completing their compulsory education. The majority did so during primary school—most frequently boys, on whom the families rely to help with fishing. These families often have debt and, to pay it off, are forced to hand over up to 40% of their catch to middlemen.

In general, there are fewer early-school dropouts; in particular, young women are increasingly likely to express an interest in going on to higher education. In this case, government initiatives seem to be producing results. Since 2011, the government has been giving girls free bicycles to help with access to secondary schools. A study by the London School of Economics and Oxford University in May 2012 evaluated the success of a very similar project in the Indian state of Bihar and found that the scheme works (Weiss 2012). In August 2012, the state of Orissa extended this funding to all students in year 10 (students aged 15) (New Indian Express 2012). However, studies in other states show that only 30% of the money is used to purchase bicycles—thus making such funding a less effective measure than the direct distribution of bicycles (Hindustan Times 2013).

These initiatives are an attempt to combat the low educational participation of girls and young women throughout India (Govinda and Bandyopadhyay 2010), but it is difficult to isolate this issue in fishing families because fishing is a traditionally male occupation. Young women provide support by maintaining the household and caring for younger children, and some are involved in pre- and post-fishing activities, but they seldom go into the Lagoon. Being land-based is an advantage for girls: it makes them flexible and enables them to continue their formal education, which is evident from some of the day logs we analyzed (see below). Meanwhile, their brothers—often under parental pressure—are more likely to drop out of formal education at the end of primary school as soon as they can support the family's fishing activities. Many young women still leave school to work full time in the household or to marry. We also found that those who stay at school usually value a family-oriented future and do not want to leave their familiar environment

(Bhandari and Smith 1997). It is to be expected that parents' influence plays a significant role in these decisions.

When questioned about their skills and abilities, male respondents were particularly likely to cite craft skills, skills relevant to fishing, and skills in ball sports, while female respondents attached more weight to social skills, including religious activities, cultural and communication skills, and teaching, as well as craft skills.

Formal technical vocational education and training

When it comes to *formal* technical vocational education and training (TVET), India sets great store by the establishment of Industrial Training Institutes, or ITIs (for an overview of TVET in India, see, for example, Agrawal 2012, Singh 2012, and World Bank 2008). Very recently, the government has decided to improve state-level ITIs through a PPP model to boost the practical experience component.

Formal vocational training in the region of Chilika Lagoon plays only a minor role in educational life. None of the people interviewed in our local surveys took vocational secondary education and none of Orissa's 97 polytechnics is located in the region, while of its 623 ITIs and private Industrial Training Centres (ITCs), just 9 are located within 30 kilometres of the Lagoon.

We studied one ITC in detail and interviewed six students, all of whom complained about the poor technical level of the training. The equipment and teaching materials were obviously outdated or simply not available. One student commented: "We do not have much equipment and most of the tools and machines are old and not used anymore in industry".

Another indication of a poor orientation to vocational practice was the ITCs' failure to maintain the required 60:40 balance of practice to theory. Moreover, all classes were usually conducted in the local language rather than in English, the required language. Such courses, therefore, do not improve students' English. The students interviewed were generally motivated to embark on ITC training by their fathers and by the hope of finding employment more quickly and easily. Most of their friends had either gone straight into employment or registered for three-year college or university courses ("No one out of my class went to an ITI or ITC. All started working for their family or began study in a college"). Two interviewees were studying at ITCs in major cities; they reported a better practical orientation and complained less about the technical equipment ("[T]he infrastructure in the big city was excellent. The teachers were very helpful and we collected a lot of practical experience").

We interviewed one ITI operator and one ITI instructor; both confirmed the students' comments. The nine ITIs near Chilika Lagoon offer training in occupations that do not really meet regional needs. These ITIs usually offer training only for electricians and mechanics; students can find such work locally only in a few state power substations—most are forced to move to larger cities or to return to the informal sector. An Ernst and Young (EY) corporate study (2012) focusing on Orissa confirms our observed low level of interest in TVET. The EY research found that, on average, 63% of ITI slots and 55% of ITC slots in the Chilika districts of Ganjam, Khurda, and Puri went unfilled in 2010.

Nonformal education among the fishing families

Regarding nonformal education, options exist either for strengthening the fishing communities or for creating skills through diversification.

We interviewed six education experts working in or with two self-help group (SHG) projects that provided training: a computer course and another initiative relating to fishing families. SHGs support local fishing families with marketing and fundraising. They focus mainly on training women for such marketing activities as dried fish production and livestock management, and for other activities to provide additional sources of family income as well as to develop skills and—very importantly—improve families' social position. Particularly relevant in the Chilika Lagoon region, SHGs can open bank accounts to handle investments and micro-loans (the provision of micro-loans depends on an SHG's work), and the banks giving the credit monitor the SHGs' activities. However, people do not appear very motivated to engage with SHGs. In the Lagoon region, participants know that SHGs do not really help them create additional income, for a variety of reasons, including lack of local markets and lack of technology to make larger businesses efficient. Access to credit seems to be participants' major purpose for being involved, with potential profit from the activities themselves largely ignored. SHGs were, therefore, consistently seen as inefficient and unpopular by respondents in the family survey.

The parallel SHG programme run by the World Bank's Integrated Coastal Zone Management (ICZM) project is set up very differently. The project is limited to 17 Chilika Lagoon villages on the coastline of the Bay of Bengal and provides them with financial and personal support. Each SHG receives support based on its business plan, and up to three members of its board receive training in organizational and accounting skills, while the remaining members get operational training on site. Although the project started only recently (late 2010), some commercial success linked primarily to regular monitoring of the project is already visible. World Bank auditors, in February 2013, reported the project's significant progress in forming trade infrastructures (Government of Orissa 2013).

We identified some problems with a computer-training program—designed to generate alternative sources of income sources—supported by the state and accredited locally by the National Skill Development Centre. Closer scrutiny of 3 of approximately 60 training facilities in the south of the Chilika Lagoon region suggests that they operate highly inefficiently. Though the extremely decentralized structure reaches almost every village, these facilities are very poorly equipped and face regular problems with their local power and internet connections. Moreover, none of the local operators surveyed indicated that he or she is able to train students to a professional standard. Moreover, monthly tuition fees are INR 475 (around EUR 7), usually beyond the reach of poor fishing families.

Furthermore, the economic independence of the private provider BASIX is questionable: the facilities' operators also offer other products, such as insurance. Finally, these computer courses do not seem to have a high profile; the fishing families surveyed all reported a lack of computer facilities and courses around every Chilika Lagoon sector.

By contrast, popular courses include direct training for fishermen in fish marketing, hygienic handling, and sustainable fishing and quality management, such as the NETFISH programme run by the Marine Products Export Development Authority (MPEDA) and the Chilika Development Authority (CDA). The direct involvement of national authorities like MPEDA and CDA and of FISHCOFED, a national association of fisheries cooperatives, seems to support the courses' efficiency. As an example, one successful programme promotes the use of ice boxes, which adds value to the fish, boosts profits from fish marketing, and benefits ice producers near fish landing sites.

More than 80% of the 33,000 fishermen around Chilika Lagoon have already taken basic training courses run by FISHCOFED. Evidence indicates that paying participants to attend—and providing free food and accommodation for nonlocal seminars—boosts participation (Mohanty and Behera 2012). The basic courses, which run up to five days, cover

topics like hygienic handling of fish, responsible fishing, and fish marketing, and are usually held in or near the Fishery Training Institute. For such courses, FISHCOFED pays compensation for lost earnings of INR 150 a day (around EUR 2.10), and participants receive a personalized certificate when they complete the course. During the course of our research, we participated in a local half-day seminar run by NETFISH. Presenters conducted this course, on sustainable fishing and post-catch fish-quality management, in a fishing village and 30 of its fishermen attended. Here, the set-up seemed much more effective than with the computer courses. Three respected lecturers used a variety of media, including brochures and a video. While most of the learning was passive, one lecturer involved participants by asking questions after each topic. The composition of the participants gives some cause for concern, however: older fishermen clearly preferred to send their sons out fishing rather than to a training course. The oldest participant was 57 and only one was under 20—he said his father had sent him. One of our major criticisms, therefore, is that the programme is missing its young target audience. The training organizations, MPEDA and CDA, generally ask each village elder to select one person from the village to attend trainings. Communication is, thus, via top-down delegation, which ultimately makes it impossible for the training providers to influence the selection of participants.

Informal learning among the fishing families

According to Kirchhöfer (2000), informal learning takes place mainly in the social environment; thus, an individual's entire social environment is a potential learning environment. In our study, the young people's social environment is very restricted. Govinda and Bandyopadhyay (2010) found that nonparticipation in school, which is typical of fishing families, leads to social exclusion. Exclusion from the social environment, therefore, rules out opportunities for informal learning (Kirchhöfer 2000).

However, even when children go to school and thus have a broad social environment, this does not automatically produce a learning environment (Kirchhöfer 2000). Individuals need motivation if they are to benefit from a social environment. Watkins and Marsick (1990) list proactiveness, autonomy, and empowerment as essential requirements for a learning environment. However, precisely these qualities may be in short supply in India, whose sociocultural framework includes such factors as the seniority principle, hierarchical structures, and the caste system, which predetermine individual destinies (Singh 2012). Most people consider personal initiative, particularly among younger people, as less important than the advice given by a father or other senior figure—a belief that also emerged from our family interviews and day logs.

Daily routine, low levels of motivation, and a seemingly secure life with strong social relations, including the family bond, tend to produce low informal-learning performance, as noted by Kirchhöfer (2000) in his analysis of day logs. No one could say that the situation of fishing families is secure or unproblematic, yet younger family members have little motivation to improve their lives through learning and self-development. Perhaps part of the answer lies in their limited employment and leisure activities, which provide few opportunities for informal learning. The expectations of children and parents largely overlap, and parents have a strong influence on their children. Young men, in particular, often have no expectations outside of fishing, are wholly passive, and encounter fewer new challenges than their sisters, according to their reports in their day logs. The day logs of one young fisherman, moreover, show repeated, virtually identical entries and similar statements on different days.

Young people from nonfishing families seem to enjoy better prospects. As well as being more likely to attend school and therefore to benefit from the broad social environment it represents, they are often involved in the household, rearing younger children and supporting the family business, for example, through marketing activities. One female interviewee was even responsible for her father's accounting ("and went to father's shop for helping him. I took all calculating responsibility"). Nevertheless, these activities offer only limited opportunities for informal learning, and learners' success depends critically on their motivation and self-organization skills, which are mainly the result of heteronomous biographical socialization and the learning-conducive structure of the social environment (Kirchhöfer 2000).

The children of all families also deal with money. Virtually all of them receive pocket money, though we observed that girls and young women always received smaller sums than boys and young men. They usually had to meet the cost of school equipment from their pocket money. They—especially girls—were also involved in local marketing activities.

Young people from fishing families have fewer expectations than children from nonfishing families. Their professional goals are limited and they usually confine their purchasing aspirations to fishing-related equipment. Young people who get pocket money seem to keep a tight rein on their spending; they report purchasing items at substantial intervals and spending between EUR 4 and EUR 10. Parents and their children regularly go to the market to buy and sell, writing down all transactions.

Young people's career plans usually reflect specific occupations with which they are already familiar from their home environment. Young people from fishing families usually see themselves carrying on the family business, while those from nonfishing families frequently aspire to a position in government service.

Conclusions

In assessing our findings, we must highlight the framework of the microanalytic approach we selected. We conducted our study in a rural region that is, by Indian standards, economically underdeveloped. Our focus on families that earn their livelihood from fishing also implies a focus on a certain social status characterized by poverty and social disadvantage. We discuss our findings against this backdrop.

Our findings reveal clear distinctions between different forms of learning.

In the region we studied, **formal general education** is only rudimentary. Although virtually all children attend school in their early years, many drop out early on. What is of interest here is that the children who remain at school for longer are not directly involved in fishing. We were struck, during our many and diverse school visits, by the prominent lack of equipment in schools—unusual even by Indian standards—and the absence or shortage of properly trained teachers. These problems mean that children are acquiring only basic knowledge of reading, writing, and numeracy. We were unable to survey the transition to higher-level general education institutions, but the obstacles unmistakably include deficient primary educational achievement, financial considerations (high fees combined with loss of family income if a child continues in school), and the large distances involved, as well as social exclusion.

The few young people who move on to a vocationally oriented ITI/ITC also endure inadequate equipment and underqualified teaching staff in those institutions. Moreover, some instruction is technologically out of date, relies too heavily on theory, and fails to

meet governmental guidelines. Against this backdrop, it is not surprising that many young people encounter difficulties when they get jobs. In this respect, our findings also tally with those from other studies (see, for example, ILO 2003; Kumar 2012).

We show that the advantages of **nonformal education** lie particularly in the high level of scrupulousness with which skills are developed and in the tailoring of this education to the realities of the learner's life. Unlike informal learning from family members, nonformal education involves people outside the family helping to extend learners' skills and widen their horizons. As we noted earlier, for example, fishing training shows that targeted and needs-oriented teaching develops learners' skills and improves fishing families' economic situation.

While **informal learning** for girls is largely restricted to domestic skills, it is central for boys from fishing families. Male family members are integrated into fishing activities from a very early age and informally pick up the knowledge and skills they need for the work. Tacit knowledge and protected knowledge and experience—for example, in relation to fishing grounds or the finer points of catch methods—are particularly important.

We found, through surveys, that informal learning also embraces some basic learning processes in economic literacy. We were very surprised at the number of young people who received pocket money and could describe very precisely how they decided to spend it. Peers, as well as families, seemed to play a role in guiding this learning.

Our findings suggest a number of recommendations that we can discuss only in outline here and that require a comprehensive planning and implementation process.

For the fishing families of Chilika Lagoon and their children, it is important that they are able to integrate and extend the three types of learning we have analyzed here. Nonformal education is particularly important: it is, on the one hand, "demand driven" and, therefore, can be tailored very specifically to the needs of the young people. Further, it also has a "supply-driven" side—in short, the state can support or even provide this kind of education. Where appropriate, the central government could usefully extend its initiatives (referred to above) to the local level. As the computer course example shows, providers need to tailor courses to the needs of learners (demand-driven) and to hold out the prospect of short- to medium-term economic gain: these activities will succeed only when courses in fact promote learners' motivation and make explicit the benefits of learning (Marsick, Volpe, and Watkins 1999).

In this context, it is also possible effectively to combine nonformal education activities with other initiatives. However, this requires detailed planning, as our findings in relation to SHGs show and as Mitra (2002, p. 29) also stresses: "In this context, the formation of self-help groups and micro-finance cannot be emphasized enough. But again, it is necessary to be cautious. NGOs are forming such groups throughout India, but very often with limited success. The human investment in group formation is often not sufficient".

In comparison to informal learning, formal and nonformal education have until now played only minor roles in people's learning lives, which is a major issue in regard to jobs. As Noronha and Endow (2011) found in the case of murtikars, we also found that the transmission of protected knowledge is vital to informal learning in specific areas of activity. To this extent, we see the informal learning integrated within families as essential to income generation. Yet, although informal learning may ensure knowledge transfer in the fishing sector, its dominance also means that fishing families may be unable to switch to other careers if they need or wish to do so. Only with an intensification of nonformal education, perhaps tied to compensation for earnings lost while attending trainings, can people acquire the necessary skills to get jobs in other sectors.

From a research perspective, however, we need a range of other activities. For example, we need longitudinal research that tracks the lives of children and young people over long periods and analyzes their transition to employment. Also helpful would be wide-ranging and long-term supporting research into the development and use of new provisions for nonformal learning. The limited and fragmentary evaluations carried out so far do not, for example, tell us much about actual learning outcomes, the application of what people have learned to everyday working practice, or the sustainability of programs. We should link this research with studies of vocational teaching and learning.

Finally, we note the limitations of our research methodology. Focusing on the specific socioeconomic framework in the region under consideration means that our findings cannot automatically be generalized or transferred to other regions of India or other countries. Where we felt it meaningful to do so, however, we indicated the links with research from other regions of India. In all cases, educators and organizations must use an independent prior assessment of the framework and the needs of people living in a specific region in order to support any planned training activities in that region.

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