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Strong community, deep learning: exploring the link

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This explores the constructivist understanding that shared practitioner research in collaborative online spaces leads to deeper learning. The research was developed within the context of building the National College of School Leadership's (NCSL's) online learning communities. A community and a learning scale, both emerging through grounded analysis, are applied to six conversations across both formal and informal learning contexts. When representing the findings, a strong similarity in the community and learning graphs suggests an association between the two. Recommendations point to the importance of building collaboration and community, integrating formative assessment, and freeing the learning-facilitator from tasks that the community can fulfil, so that they can focus on their primary role of facilitating quality learning.

Overview

e-Learning is increasingly being integrated into higher education (HE) via a range of approaches. Ultralab's work with informal learning communities has led to the development of a community approach to support online programmes,[1] because our observations indicate that strong community leads to deep learning (Marton & Saljo, 1976). This paper presents our model which explores the relationship between these, in the context of discussions occurring in the voluntary and informal professional online community Talking Heads, as well as in the more formal Virtual Heads community established to support the online National Professional Qualification for Headship (NPQH) programme run by the National College of School Leadership (NCSL).

This paper is of relevance to HE because:

- Online environments are becoming increasingly integrated into HE provision.
- The demands of the contemporary work environment require employees to develop the skills to think creatively, solve problems and work effectively within a team.
- Online learning communities provide a developmental window on to the learning process, allowing fuller formative feedback as well as providing a portfolio of learner contributions (Bradshaw *et al.*, 2002).

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- Collaborative dialogue is directly linked to increased skills in critical thinking and problem solving (Gokhale, 1995).
- Online asynchronous learning communities provide a particularly rich opportunity to generate collaborative dialogue (Bradshaw *et al.*, 2002).
- The learning-facilitator is able to focus on the quality of learning, because online learners can assist each other with the more mundane concerns (Bradshaw *et al.*, 2002).

Developing online communities

> Imagine a collection of individuals, working in close proximity, sharing a common purpose and passion—a desire to learn … Imagine this same collection of individuals, working closely together, sharing knowledge, aspiring to the same vision … Imagine that same collection of individuals, sharing each other's hopes and fears, empathising emotionally, unleashing the power of their collective intelligences. This is a learning community. (Collarbone, 2001)

This vision for learning through community describes what Ultralab aspires to for our online learning communities. Heppell (1999) points out that technology can be used as a conduit to deliver content (Information Delivery Technology) or to support the building of deeper understanding through participation and engagement (Information Communication Technology). Therefore the model of learning adopted is vital. Ultralab utilises the opportunity to enable participants to engage in thought-provoking discourse on their own terms (Heppell & Ramondt, 1998), thereby scaffolding (Vygotsky, 1978) each other's learning through their use of online learning communities. These can be informal or can take the form of online Communities of Practice (Wenger, 1998) or online programme communities.

Constructivist theory (Bruner, 1986; Fosnot, 1996), which views learning as active, constructive, intentional, complex, contextualised, reflective and collaborative (Jonassen, 1995), informs the pedagogical foundation for the design of Ultralab's online spaces. The Ultralab facilitators aim to empower participants to actively construct their knowledge rather than passively receiving information, through participation in reflective dialogue in a trusting, familiar, informal and empathic community.

Table 1 illustrates how constructivist theory aligns with online learning communities. Although our informal communities align clearly with the right column of this table, community also influences our work with online learning programmes. Although these require a small-group, learner-centred focus, we encourage the tutor to adopt the role of the learning-facilitator and co-learner, and for the programme participants to see themselves as active participants in the community.

Our work (Chapman & Ramondt, 1998, 2003; Chapman *et al.*, 2002; Ramondt & Chapman, 2004) has allowed us to identify elements in online conversations which differentiate a learning community from information exchange. These elements include informality, familiarity, honesty, openness, heart, passion, dialogue, rapport, empathy, trust, authenticity, disclosure, humour and diverse opinions.

This is evidenced by the behaviours used by members (also see Methodology):

- using 'we', agreeing (or disagreeing) with each other (Chapman & Ramondt, 1998);
- mentioning each other by name;

Table 1. Learning styles: developed from the Learning Styles CIPD Seminar (Caley, 2000)

Online distance learning	Online learning programmes	Online learning communities
Web-based training	Supported online learning	Informal learning
Instructor centred	Learner centred	Community centred
Content focus	Process focus/led	Practice led/focused
Individual	Small group	Organisational
Minimal interaction between participants	Tutor-led interaction	Participation of the whole group
No collaboration	Interaction with other learners	Participants are both learners and tutors

- making social remarks;
- arranging to share information;
- suggesting further collaboration;
- initiating discussions;
- lobbying;
- humour;
- providing informal mentoring.

Many or all of these elements have been seen in both the formal course-linked learning communities as well as the voluntary informal learning and support communities.

As anticipated, the appropriation of ICT technologies (Dwyer *et al.*, 1997) through increasing technical competence and understanding of the effective use of the technologies, has led to a sense of ownership within the communities as evidenced by:

- members initiating, driving and facilitating conversations;
- starting and facilitating their own learning circles or communities;
- using the tools for their own projects, e.g. research.

Online community takes time to evolve (Cox, 1997) and requires support in the form of professional, experienced online learning (White, 2001). HE, with its emphasis on module completion, needs to allow time for rapport to develop. Many members come to the online community space seeking information and quick answers to difficult questions. Indeed, an ethos of reciprocity is essential and develops quickest where there is a need, such as when a member is facing a current crisis like a headteacher who is being bullied, or is facing a racial incident in his or her school. However, as these catalysts are rare, strategies such as ice breakers, seeding, an explicit statement of expectation regarding participation and congeniality, and guidelines for effective online behaviours need to be built into the induction.

NCSL's online communities

The NCSL leadership framework offers school leaders a variety of courses and initiatives, ranging from formal accredited programmes, like 'Leading from the Middle' to large informal networks, for example Network Learning Communities. Whilst it is easy to see the value of

online community for providing informal support and learning, as for Talking Heads and Network Learning Communities, the notion of collaborative learning was initially more controversial for formally accredited programmes like the NPQH.

Learning through NPQH's Virtual Heads online communities is based on the principle of reflective activity. Unlike traditional distance learning courses, the activities and content of the NPQH support materials are not to be studied in a linear, academic manner, but are based on the needs, pace and practical understanding of the candidate. The programme encourages candidates to test their ideas out in their workplace and to compare their findings with colleagues. Thus the NPQH programme was expected to be dynamic and flexible. However, until working with Ultralab the NPQH was based primarily on a model of individual reflection.

The online delivery of Virtual Heads enables the participants to select their areas of study, to be self-paced, self-directed, and for their pragmatism to develop into reflection on theoretical models of leadership. It was realised by the programmes' team, however, that the knowledge shared by the practitioners in their online communities also provides a flexible and agile means to extend and update the modules' support materials. Virtual Heads also enabled participants to control and direct their own learning in the online environment. When designing Think.com it was recognised that the asynchronous conferencing process, where people reply to someone's message after thinking about it and preparing their reply in their own time, affords excellent opportunities for reflection. The asynchronous nature of online communication empowered participants to direct the pace and structure of their journey through the programme via online discussion and debate.

Virtual Heads allows for a much greater interchange of ideas and experiences and a more reflective mode of learning than is traditional. One advantage of the online environment is that the learning experience of individuals is no longer isolated. It is complemented by that of others: fellow candidates, facilitators and national figures. It allows for an individualised programme which is not 'resource hungry'. For higher education this means that adopting online community can allow the development of programmes which have a self-paced, individualised mode of study within current funding constraints. This mode of working enables students to mentor and support each other and relieves the learning-facilitator/tutor from dealing with minor questions, freeing them to ask challenging questions that deepen and focus the debate, whilst linking theory to practice.

Exploring the connection between deep learning and community

Bloom (1956) pointed out that most formal testing only assesses recall, the surface form of learning, while the world of work requires that learners can apply, analyse, synthesise and evaluate information which are the products of deep learning (Biggs & Moore, 1993). When participants collaborate, as they are encouraged to do in online spaces like Virtual Heads, they are encouraged to become involved in the active construction of knowledge (Jonassen, 1994) through the exchange of motivated and considered feedback (Kaye, 1995).

Research demonstrates the strong positive effect of interactivity on learning (Bosco, 1986). Educational theory has long established that people learn material faster and have a better attitude toward learning material when they learn in a participative environment (Vygotsky, 1978; Bruner, 1986). Constructivism encourages learners to develop meaningful, scaffolded,

student-directed or deep learning, which takes into account individual differences, and is grounded in the daily world of the learner's experience. Learning therefore takes place within a social environment that encourages reflective dialogue and collaboration. Van Weigel even defines deep learning as 'learning that promotes the development of conditionalised knowledge and metacognition through communities of inquiry' (2002, p. xiv). The notion that deep learning and community are integral prompted us to look for patterns in our data that might point towards a model.

Dialogue or discussion?

In the literature, there is clear delineation between dialogue and discussion. Isaacs (1994) identifies dialogue as a climate of openness, free of preconceptions, which supports people to acknowledge each other beyond their roles, as genuine human beings. This provides the foundation to allow them to move towards a 'collective mindfulness'. He describes the progression that ends either at 'metalogue', the level of true shared meaning, or alternately debate, the process of 'beating each other down', as being based on the willingness of participants to suspend their prejudice and be open to listening to each other's perspectives. Daft (1999) reiterates this, defining dialogue as the process people engage in when they reveal feelings, explore assumptions, suspend convictions and build common ground. This, he states, leads to long-term, innovative solutions, unification of the group, shared meaning and transformed thinking. Daft (1999) characterises discussion as: members stating positions, advocating their convictions, convincing others; and building oppositions leads to: short-term resolutions, agreement by logic, the defeat of opposition and entrenched positions.

Online, neither discussion nor dialogue are so clear-cut, although it is clear that learning is enhanced through social conversatons and the exchange of stories (Comstock & Fox, 1995). The power of asynchronous communication is that it allows participants to join in online conversation at their convenience, to reflect upon what was written, and then to return to affirm, clarify or challenge (Chapman, 1997).

How the discussion develops and whether it develops to constitute dialogue will be influenced by the strengths and weaknesses of the software (Comstock & Fox, 1995; Lee *et al.*, 1997). One of the strengths of the software used for the NCSL online communities was the number and type of discussion tools available. Much community software is limited to threaded discussion. Within the 'Think.com' software the tools specified by Ultralab included unthreaded 'conversations', anonymous 'brainstorms' within which contributions appear scattered on the page, 'debates', a name used to signify that threads or themes can be determined in advance, and 'hotseats' which allow answers to be inserted directly below the question like a traditional Q and A. The fact that each of these tools allows the response to be viewed on the same page led, on the one hand, to some very long pages (it is not uncommon for a popular hotseat to print up as 40 plus pages), and on the other hand, provides an immediacy and accessability that proved to be engaging.

Nevertheless, the flow of conversation, the building on each other's utterances in the light of new insight that constitutes dialogue, is interrupted by the asynchronous nature of the online communications. Members wait for some time before questions are answered, while in the gap other topics are pursued. It also generally requires explicit mention for group members to

recognise the value of reporting back on new insights or the impact of the conversation on their practice. This means that dialogue, if strictly defined as leading to new insight, is rarely visible online. However, the engagement that originates from collegiality and conviviality is much more common. This was how dialogue was defined for the purpose of the current study. At the same time, the online professional discussions and debates between professional colleagues were rarely as divisive as the terms debate and discussion suggest. As the dictionary definition of discussion includes all of these elements, we combined discussion, debate and dialogue under this heading in our scale.

Methodology

Most of the research completed since January 2000 on the Talking Heads and Virtual Heads project has been qualitative, allowing a description and exploration of the how and why (Yin, 1989) of online communities. Much of the data that has informed our case studies is based on feedback from participants, and captures 'key moments' in the conversations. The online facilitators involved in the project and immersed in the communities took the role of participant researchers. It is Ultralab's philosophical bias that online communities support learning. The current article is therefore an exploration aiming to contribute to further enquiry amongst our peers. This is described by Salomon in the following manner:

> the study of novel and complex designs becomes a fruitful source of new ideas and hypotheses, thereby establishing an ongoing cycle of hypothesis testing through design and hypothesis generation through observations of the resultant learning environments. (Salomon, 1994, p. 23)

Over a period of four years, NCSL discussions were examined and categories indicative of community emerged grounded in the data (Miles & Huberman, 1994) through an iterative process (see Developing online community). Based on this work, we developed a scale (Table 2) of community strength where 'Me/My' indicates weak community, through to 'Ownership' indicating strong community.

We also carried out an examination of learning as evidenced in online conversations, and developed a taxonomy that sought to measure learning on a scale. Ultralab began with Gillian Salmon's individual and collective knowledge generation taxonomy (1997) and with reference to Bloom's taxonomy (Bloom, 1956). This was iteratively streamlined until new 'Evidence of Learning' categories emerged (Table 3). These categories were then ordered in a scale where 'Offering' is seen as surface learning moving to increasingly deeper levels of learning. Individual contributions were assigned multiple categories where appropriate.

Table 2. The community scale

Me/My	Me and my school (discussing an individual or individual school)
We/Us	We and us (discussing schools or participants collectively)
Humour	Humour, passion, venting and disclosure
Agreement	Agreement with, or reference to, other participants or contributions
Discussion	Discussion, debate and dialogue, mentoring
Ownership	Ownership (lobbying or proposing action)

Table 3. The evidence of learning scale

Offering	Offering information, ideas, resources and inviting critique (as an initiation)
Asking	Asking challenging questions
Articulating	Articulating, explaining and supporting positions on issues (raising)
Reflecting	Reflecting on previous contributions
Exploring	Exploring and supporting issues by explanations and examples. Also critiquing, challenging, discussing and expanding others ideas (feedback)
Insight	New insight, re-evaluation, conceptual change (based on dialogue)
Impact	Impact (proposing action), summarising

One author then applied both sets of categories across the six discussions for this study. It is anticipated that the categories will evolve further.

Evidence base

Of the six online discussions selected for analysis, three came from the more formal programme communities, Virtual Heads (VH). These were characterised by having learning as their primary objective. Another three discussions were chosen from the informal Talking Heads (TH) communities which were characterised by sharing and a sense of community. Beyond this the discussions were chosen on the basis of their size and membership, i.e. two large, two small and two medium-sized discussions. The discussions that were downloaded towards the end of July 2003 are listed below.

- VH discussion 1: The fourth in a series of bulletin boards in a programme community for Bursars. Contributions far outnumber contributors. It was actively and positively facilitated and therefore attracted a large number of contributions with apparent evidence of community.
- VH discussion 2: A formal relatively small-sized discussion on the strategic development of the school. It became one of the resources on the programme.
- VH discussion 3: An informal medium-sized discussion on networking. Because of its focus on networking there were a lot of 'Me/My' type contributions as introductions.
- TH discussion 1: A small discussion on 'Linking Kids Electronically'.
- TH discussion 2: A medium-sized discussion called 'Endings and Beginnings'. This discussion showed evidence of community.
- TH discussion 3: Was also actively and positively facilitated and therefore attracted a large number of contributions. Called 'Challenges for the New School Year'. It was also chosen because it showed evidence of community.

A description of the six conversations is given in Table 4.

Analysis

The aim of the analysis was to explore possible links between strong community and deep learning. Each contribution to a discussion was categorised (see Tables 1 and 2) for both learning and community.

Table 4. General description of the six discussions

Discussion	Number of contributors (not including facilitators)	Number of contributions (not including facilitators)
VH 1	10	167
VH 2	9	42
VH 3	45	61
TH 1	5	8
TH 2	7	29
TH 3	26	89

The sum of contributions for each category was calculated. Figures 1 and 2 show the results for the community scale and the learning scale.

The most striking feature of each chart is the similarity between more formal VH and informal TH discussions. Also, the columns have a broadly similar shape, the only discrepancy being the first category in each chart. This is probably explained by the category 'Offering' including 'inviting critique' whereas the category 'Me/My' is more introductory.

Exploring the link between community and learning

In Figure 3, the two scales (Community and Learning) are presented as going down each side of the diagram from weak to strong in the case of community and from surface to deep in the case of learning. As Figures 1 and 2 are similar, it may be expected that an association exists

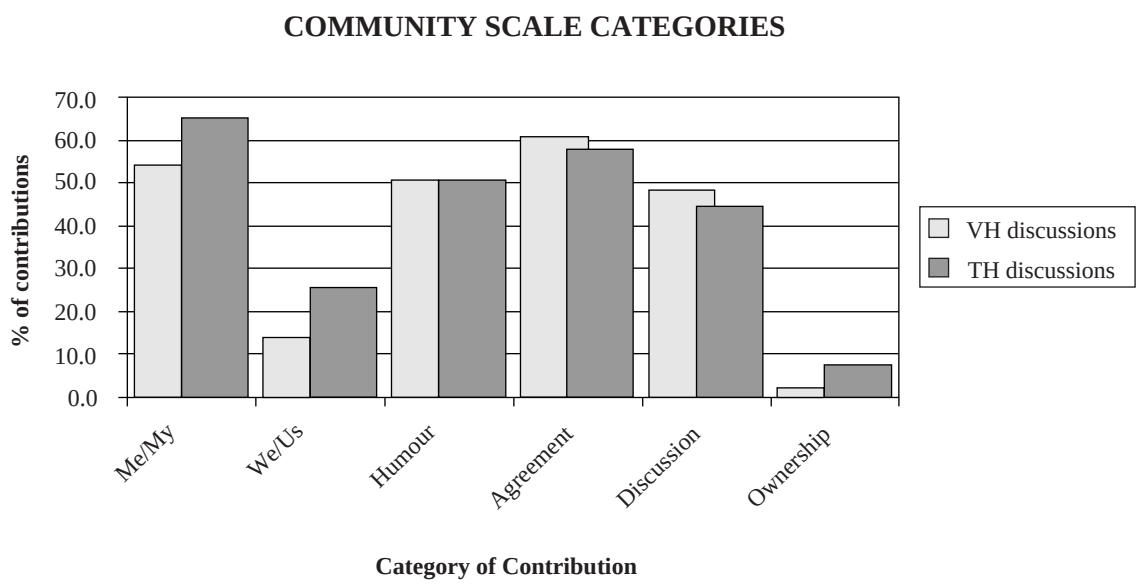

Figure 1. Community scale showing TH and VH discussions separately

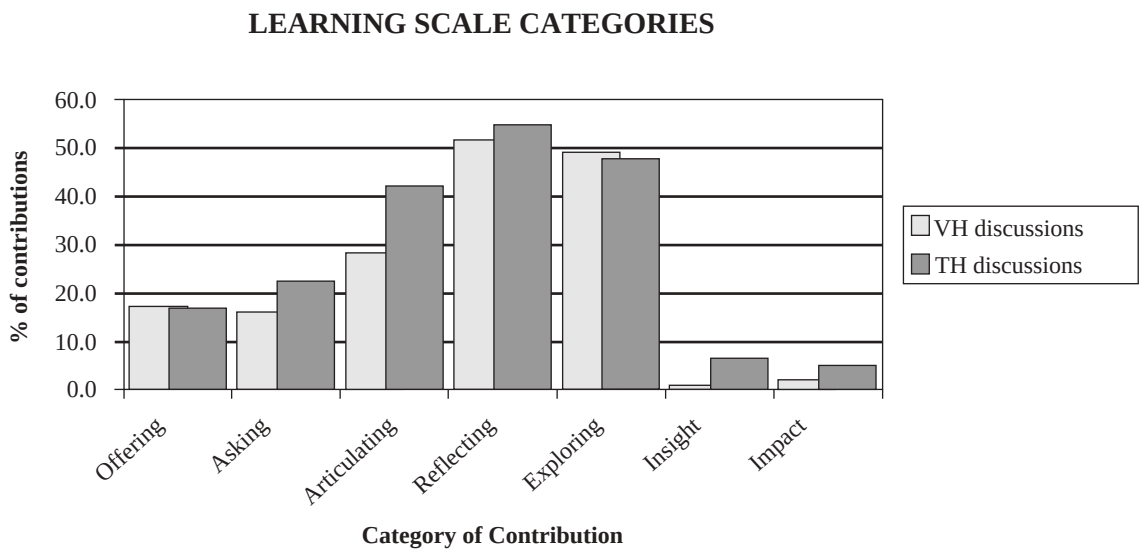

Figure 2. Learning scale showing TH and VH discussions separately

between the community and learning scales for potentially corresponding contribution types in each discussion (e.g. 'Me/My' and 'Offering', 'We/Us' and 'Asking', etc., as shown). To test this hypothesis a figure was put on to these associations; it was calculated as follows.

For each discussion and for each pair of contribution types:

- Each time a contribution showed a single contribution type it was recorded (e.g. in VH1, there were 27 occurrences of either 'Agreement' contributions (community scale) or 'Reflecting' contributions (learning scale)). Call this number x.
- Each time a contribution showed both contribution types this was counted (e.g. in VH1 there were 102 instances when contributions were both 'Agreement' and 'Reflecting' types). Call this number y.

$(100y)/(y + x)$ gives a percentage for each corresponding pair in each discussion (e.g. $100 \times 102/(102 + 27) = 79\%$ for pair 'Agreement' and 'Reflecting' in VH1).

A mean percentage for all six discussions was then calculated (e.g. 80% is the mean association between contributions of the type 'Agreement' and 'Reflecting'. We have called this a strong association).

Findings

Table 5 reports the mean associations (for all six discussions) and also for the range of associations seen across the six discussions individually.

An example: There is a strong association (88%) for contributions of types 'Discourse' (Community scale) and 'Exploring' (Learning scale). The association ranges from 71 to 100% in the six discussions. In other words, where a contribution was type 'Discourse' and/or 'Exploring' then 88% of contributions were both 'Discourse' and 'Exploring'. The result for

Table 5. Associations between categories for the community and learning scales

Association type (community and learning)	Mean association (%)	Association range (%)	Association strength
Me/My and Offering	24	9–50	Weak
We/Us and Exploring	18	0–63	Weak
Humour and Articulating	26	0–45	Weak
Agreement and Reflecting	80	73–88	Strong
Discussion and/or Exploring	88	71–100	Strong
Ownership and Impact	75	0–100	Strong

'Humour' and 'Articulating' is expected to be weak as 'Humour' is a social contribution and 'Articulating' is a task-focused contribution.

Based on these findings we drew Figure 3, showing the learning and community scales, and the associations between the two, as observed from our analysis. The horizontal lines connect assignments in each of the two scales. A solid line indicates a strong association, a broken line indicates a weak association.

Discussion

We are engaged in an ongoing cycle of action research, and in the tradition of qualitative case studies, present the model in Figure 3 as a stimulus for further professional dialogue. When working constructively in a collaborative environment a participant is required to expose their uncertainties. This is more easily achieved in a strong community environment. This is of specific importance when individuals are more used to competition. Our work suggests that allowing time for trust and a strong community ethos to develop is rewarded by discourse that more readily demonstrates deep learning.

The categories are under review. Under the learning scale, 'Asking' may be changed to 'Asking questions'. If dialogue is defined as generating new insight rather than just describing engagement, we believe the separate category will associate strongly to category 'Insight', although this is rarely visible online. Under review is also whether disclosure, from the category 'Humour' should be moved higher up the community scale.

We hypothesize that making the scale for learning explicit to students will encourage them to be more metacognitive and skilful in their online conversations.

Implications for HE

The notion that community and learning develop together has a number of implications for practice. It suggests that taking the time at the beginning of a course to develop rapport online is a crucial investment in ensuring the quality of the learning, and that online learning which focuses on content but discounts community will have more difficulty in generating a deep learning experience for students. There are also implications for quality assurance/assessment as online dialogue can move us away from an emphasis on the summative assessment task(s)/

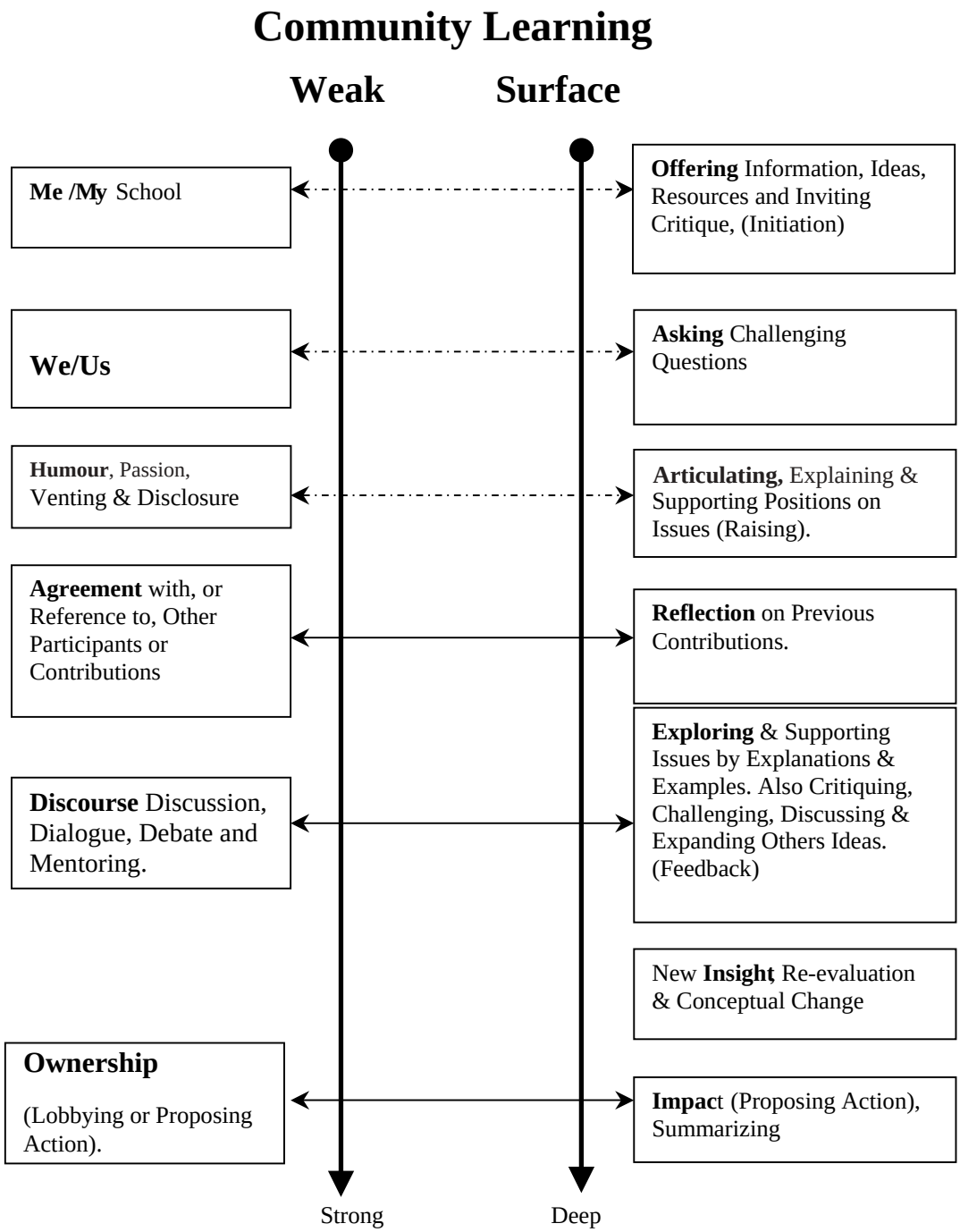

Figure 3. The associations between community and learning scales

activities to an opportunity to evaluate the artefacts (conversation and contributions) surrounding the task/activity as this provides an audit trail of the learning process. The window into the developmental process of collaborative work also provides the learning-facilitator with rich opportunities for providing formative feedback.

It is acknowledged that the issue of assessing online participation presents a dilemma. The openess and informality required for depth is mitigated against by the requirements for formal assessments. However, we have evidence from our online communities that building assessment into the requirements for participation can generate a stimulus and purpose for students who are not intrinsically motivated to participate in online conversations (Bradshaw *et al.*, 2002).

We have also found that the collaborative nature of online community facilitates self-reliance within the group and reduces reliance on the learning-facilitator/tutor. Once participants become accustomed to the transparency of online conversations, their participation frees the learning-facilitator from the task of answering routine and technical questions. Instead they can now focus on the task of facilitating learning through asking thought-provoking questions, critiquing, challenging and identifying which conceptual models need to be clarified. Furthermore, when the learning-facilitator engages in the discussion as a peer, they are modelling the important skills of leaders as co-learners (Jackson & Leo, 2003).

Note

1. Online programmes recognise that the most effective practice and understanding resides with the practitioner and that the professional knowledge base is constantly expanding. The main objective of an online programme is for participants to gain a qualification through grounding the professional knowledge of members of the community and experts in their professional practice.

Notes on contributors

Carole Chapman joined Ultralab in 1993 after 20 years in the teaching profession. Following a seven-year project on new learning environments in schools, and her work on online learning communities, Carole led the development, design and implementaion of the online Community Virtual Heads for the new National Professional Qualification for Headship from September 2000. Carole was a member of the project board and an advisor on learning communities for the newly formed National College of School Leadership from 2001 to 2004.

Leonie Ramondt—before coming to Ultralab, Leonie was a lecturer in multmedia design at Edith Cowan University, Perth, Australia. She has been an educational researcher at Ultralab since July 1997, after completing her M.Ed. thesis on Learning by Designing and Flow. Between 1997 and 2004 she researched and developed several online learning community projects for educationalists and engineers, founding Talking Heads for the Department for Education and Skills in advance of the National College of School Leadership in 2000.

Glenn Smiley studied Chemistry (B.Sc.) and Environmental Geochemistry (Ph.D.). He has been working for Ultralab since 2000 as a research data analyst. He has specific interests in Artificial Neural Networks and the environment.

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