

Chapter 7. Conclusions

In this final chapter, I summarize the important conclusions of this study and discuss the implications of the findings for the instructional design community, the limitations of the study, and describe potential paths for further research. First, I present 20 guidelines for use by educators designing for social interaction in online learning.

Guidelines

Figure 4 below presents 20 key points, or guidelines, that I developed from the findings reported in Chapters 4-6. These guidelines provide important suggestions to educators who are designing online learning environments that use social interaction. Others may find more key points as they read the rest of this study: this list of twenty is not intended to be all-inclusive.

Figure 4. Twenty Guidelines for Selecting Online Instructional Methods that use Social Interaction

1. **Select instructional methods based on fundamental values and goals.** In order to select the most effective and appropriate instructional methods for a particular learning environment, it is important to consider your underlying goals and values before choosing instructional methods, and not just rely on the set of methods that “have always worked well” in past settings. For example, some methods of online discussion are exceptionally effective for creating online learning community, but may not be effective for encouraging deep reflective thinking.
2. **When identifying values about learning, don’t stop at the “learning theory” level.** Values stated in terms of a learning theory, such as Problem-based Learning, are less useful in creating learning goals (and subsequently identifying alternative instructional methods) than are values stated at a “lower” level. For the case of the “value” of PBL, a more useful list of values might be small group problem-solving, using authentic problems, and providing a rich set of learning resources.
3. **Learning goals developed from fundamental values often involve multiple goal categories.** For example, a fundamental value of “forming online community” commonly leads to learning goals concerned with discussion, collaboration, and creating a sense of community. Each of these goals may lead to very different (though often connected) instructional methods.
4. **Collaboration-type learning goals are the most common.** Teaching students how to collaborate, facilitating this collaboration, and supporting student’s collaborative efforts is therefore a primary focus in many online learning settings that use social interaction.

5. **Take the time to consider the instructional conditions associated with selected instructional methods.** No method is likely to work in every situation, even when there are substantial similarities between settings, because there are often important differences in the instructional conditions that influence the effectiveness of the method. Without thoughtful consideration of whether or not the required instructional conditions are met for a particular method, an educator may create an instructional environment that is not effective.
6. **Be prepared to modify instructional methods to accommodate emergent instructional conditions.** Often, instructional conditions change as instruction takes place, for many reasons. Adept instructors will need to adapt to these changing conditions by selecting alternative instructional methods or modifying the methods they are using in order to maintain instructional effectiveness. Over time, it may be possible and useful to develop a set of variations for a particular favorite method in order to implement quick revisions as needed to meet new situationalities.
7. **Keep a record of changes to instructional methods you've used in response to changing situationalities.** Writing these changes down will help you remember what worked and what didn't work, and may make your instruction more effective in future situations. As well, re-reading and reflecting upon these revisions may help you understand your own instructional tendencies (and instructor-related conditions) better, facilitating your own professional growth.
8. **The use of domain experts outside of the "official" class is an effective method to build a sense of learning community.** There are significant conditions that must be met when using this method, of course. Primarily, the experts must be motivated, accessible, and appropriately matched to the student's collaboration needs (domain knowledge and cognitive level).
9. **Prepare students to use the communications technologies before requiring significant collaborative work.** It is generally not effective to let students "sink or swim" with new communications technologies by assigning a significant collaborative activity. It is much more effective to allow them to learn and practice with the technologies on smaller activities in a reduced stress, relaxed, and supportive setting where the focus is on learning how to use the technology.
10. **Encouraging students to provide technical support to one another can be an effective method of building online learning community.** When students learn to rely on one another for technical support, and they receive timely, useful help from their peers, they tend to form strong interpersonal relationships with each other. Strong interpersonal relationships are often viewed as an indicator of effective online community.
11. **The educational purpose for using instructional methods that use social interaction should be readily apparent to students.** Participating in social interaction often requires significant student effort, time, and motivation. When students recognize and acknowledge the need and value of interaction, they tend to participate more (depth and frequency), increasing the educational value of the activity for all participants.
12. **Do not overwhelm students with many new technologies at once.** Even though an educator may desire to use all the latest interaction tools in order to create the "best" interactive student learning experience, unless the students value technology tools and are willing to expend significant effort in learning how to use them, using more than one or two new tools at a time will overload many students. Often times, these students simply reject the new technology and return to simpler interaction methods (such as phone or e-mail) and may even stop interacting completely.
13. **For asynchronous discussions, plan for structuring student participation patterns.** In order for an asynchronous group discussion to be effective for encouraging dialog (posts and iterative replies), it is important that students (and sometimes instructors, if acting as a facilitator) participate multiple times, and at regular intervals. Just having enough time to post and reply to peers is not enough; the time must be distributed throughout the discussion timeframe in order to conduct a coordinated discussion.

14. **Allow for socially-focused discussions, but don't expect them to thrive in all situations.** Many environments include a discussion space for off-topic, socially-focused discussions designed to build community by providing a forum for students to share common interests, engage in extra-curricular discussions, and develop interpersonal relationships. Typically, these discussions are for student use only, so no extra instructor work is required. In some cases, these discussions are very active and productive, but in many cases they are not. In any case, the existence of this opportunity (even the perception of opportunity) may be enough to help build community.
15. **Synchronous methods should vary depending on the size of the participant group.** Large-group synchronous settings are more conducive to "broadcast-type" activities, such as presentations and lectures. Small groups are able to carry on effective synchronous discussions, especially when a goal is to reach group consensus or make other types of group decisions.
16. **External, non-instructional conditions can influence the effectiveness of instructional methods.** External conditions may affect a participant or other part of the online education system in a manner that subsequently affects the instructional or learning process in some way. For example, a significant weather event could influence participation in a planned synchronous interaction activity if participants cannot access the interaction space due to extensive power outages. Or, an economic downturn in a region could impact learners' jobs, requiring them to work longer hours (reducing the time they have for interaction), or possibly removing their access to the learning environment altogether.
17. **Plan to support student self-regulated learning (self pacing, etc.).** Many online learners participate from the [academic] isolation of their homes and workplaces. Learners who are new to the online learning environment may need extra support and guidance as they develop new "learning skills" in this self-paced, individualized setting.
18. **Student motivation is the most common and overall the most important instructional condition.** With adequate motivation, students can overcome many challenges, even other, unmet instructional conditions such as not enough time, or student values that do not align with the educator's values (such as building learning community). Without adequate motivation, very little social interaction of any value takes place. Effective instruction must always consider motivational factors – and it makes good sense to begin with conditions of motivation.
19. **Instructor motivation is an important condition, too.** Even though most studies do not mention the instructional condition of instructor motivation, many instructional methods, such as moderating a student discussion and facilitating student group collaboration, require significant levels of instructor preparation and participation. As with any person, high levels of instructor motivation often lead to excellent instructor performance and effective social interaction.
20. **There are instructional methods that use social interaction that can be effectively used to meet *any* instructional situation.** Large classes or small, co-located or remote students, synchronous or asynchronous interactions, small collaborative groups or independent study; all of these situations may benefit from instructional methods that use social interaction. As an instructor, it is helpful to be creative, flexible, and open to new opportunities to create a socially interactive online learning environment.

Next, I summarize relevant comments received from case authors regarding new directions they are taking with social interaction in their online learning environments.

Author Commentary

These comments have been summarized from the case author interviews and surveys described earlier in this report.⁴⁴ In Chapter 4, I reported author feedback associated directly with the information in the specific case report I created for each case. Chapter 6 reported author comments regarding the situationalities framework. Here, I report author feedback that is focused on new directions for online learning and teaching that include both new ways to teach online and ways to use new technology.

New Directions

Many of the authors described changes they have made in their approach to teaching online over the past few years. Since some case reports included in this study reported on courses that were taught five or more years ago, a prevalence of change is very understandable. I specifically asked authors what they were doing differently now and what they would like to do if there were no restraints (such as instructional conditions) holding them back.

One author reported that he had given up on the idea of using chat for regularly scheduled office hours, since he found that students (almost) never used this service. Instead, he now uses a virtual classroom environment to provide optional “project support” time for students. Students take advantage of this time, and the virtual classroom environment facilitates synchronous communication between the instructor and student. In this case, expanding the scope of an instructional method (from “office hours” to

⁴⁴ Chapter 3 reports on the specific methods I used to conduct the interviews and surveys. Each author was promised the condition of anonymity. Therefore, I do not use direct quotations or specific references to individual authors.

“project support”), due at least in part to the advancing technological features of a learning environment, has enabled more effective learning.

One author described a new team-teaching format he was using in an online class. In this format, he teaches one week and his teaching partner teaches the next week. They continue to alternate teaching weeks throughout the semester. When one instructor is not teaching, however, s/he still attends class as a participant with students in a virtual classroom setting. The author has been able to experience the virtual classroom as a student, and has noticed that there is often a continuous stream of social (non-content focused) chat among small groups of students. While he is undecided whether this chat is helpful or not, he feels that the students are still learning course content and in addition are connecting to other students during class in the virtual classroom setting. His early conclusion is that these connections may help create the feeling of community for these students.

Several authors reported that they were now requiring their students to choose discussion topics and moderate more of the online discussions in their courses. The authors have found that having students choose relevant discussion topics and then moderate those discussions themselves increases student ownership, interest, and participation in the discussions, and helps students “learn how to learn” online. This leads to more effective, socially interactive learning. Newer versions of online communications technology that enables student-created discussion threads and flexible online workspaces have helped make this approach simpler to implement. One author stated that teaching students how to facilitate was very important in her case, since most of her students will eventually be teaching others online.

Implications

The findings presented in this study have important implications for the instructional design community. Three important implications are: 1) using the situationalities framework approach to create online learning environments, 2) reporting situationality-related findings in descriptive case studies, and 3) recognizing the fundamental nature of conditions of participant motivation. I address each of these implications next.

Using the Situationalities Framework

The results from this study are important for educators who design online learning environments **that use social interaction**. The comprehensive situationalities framework presented here (in Figure 2) should help educators design online learning environments that use effective instructional methods which are aligned with fundamental values about learning, learning goals, and the instructional conditions in a specific instructional setting. If an educator completes the three phases of the framework, following the design guidance and using the referenced resources (Tables 9-11 and Appendices F-I), then the instructional methods should fit the specific conditions of the learning environment, and the selected methods should be effective. At the very least, learning should not be impaired by (unknowingly) unmet instructional conditions. If additional instructional conditions emerge during the instruction, resulting in ineffective instruction, the framework can help an educator modify his or her instructional approach to achieve instructional goals.

Reporting Situationalities

The results from this study are important for educational researchers who report on social interaction in online learning environments using the descriptive case study format. One of the significant limitations of the descriptive case study format is the general inability of a case report reader to transfer many of the specific findings from one case to their own situation due to the inherent contextualization of the case report's findings. It is sometimes simply left up to the reader of the case study to identify relevant, useful findings that can be applied to their own specific case. While this works well for some cases, an author may be able to enhance the usefulness of her or his case report to other educators by including explicit discussion about instructional values, goals, methods and conditions. This study has shown how descriptive case studies that include a discussion of each of the situationality elements (values, goals, outcomes, and conditions), as well as instructional methods, can be used to help other educators design instruction for similar online environments using the situationalities framework approach.

Additionally, case reports that include the situationality elements can further assist instructional theory development efforts if they are included in studies that use cross-case analysis methods, similar to those used in this study. Case reports cannot be used in studies such as this one if they do not report on the situationalities found in their specific learning environment.

Motivating Online Students

The results from this study show how important the instructional condition of student motivation is in many online learning environments and for many instructional methods. Of course, this is not surprising, since motivation has long been known to be

one of the most important factors in understanding how (and why) people learn (Keller, 1979; Wlodkowski, 1985). What this study contributes, perhaps, is a broad view of the motivational influences on the effectiveness of instructional methods across many cases, in different (yet similar) online instructional situations.

In 22 of 30 cases, and for 36 specific instructional methods, student motivation was reported as a significant instructional condition. This finding suggests that student motivation should be one of the primary concerns of educators in most (if not all) online learning settings, with most instructional methods that include social interaction. Yet, in some lists of guidelines for online education, motivation is not mentioned in any significant manner. If students are not sufficiently motivated to participate in instructional activities that require social interaction, the effectiveness of the instruction is lessened. With some methods that rely on meaningful interaction between two participants, such as peer review or one-to-one reflective dialogue, the instruction may be rendered completely ineffective for both participants, not just for the one unmotivated student.

Student motivation is a complex construct, and may not be easily changed in some settings, with some students. In many online contexts, however, there are methods an instructor can use to increase student motivation. It is important for online educators to develop a variety of methods to increase student motivation. Sometimes, external factors can be applied, such as grades for participation, or evaluation of participation quality in addition to participation amount. At other times, internal factors, such as pride in one's work, may be effective student motivators that the instructor can use. Often, existing instructional methods can be modified to build student motivation. For example, the artifacts of student work (such as posts to a topical discussion, or research reports) could

be publicly displayed after they have been submitted for evaluation. Foreknowledge of this public display may increase the motivation of some students who are concerned about the others' perception of their work.

The reader may draw other implications from this study report, of course. By limiting the present discussion to three important implications, I do not mean to restrict the usefulness of the study findings or restrain their application in instructional design contexts.

Next, I discuss several important study limitations that should be taken into account.

Limitations

The findings of this study are subject to several significant limitations. In this section, I discuss two of these limitations, context and multiple “meaning interpretations.”

Context

One of the most significant limitations of this study is the constrained focus of case reports on strictly online learning settings.⁴⁵ In order to limit the scope of the study to a manageable size, I did not consider cases of online learning environments that were designed to support, extend, or enhance face-to-face learning environments.⁴⁶ These “hybrid” contexts are becoming more and more popular in online learning, and should be studied separately, in order to identify the effective instructional methods and important

⁴⁵ Of course, I consider this aspect to be a significant advantage of this study as well, since this focused approach allows me to state more precise findings. This precision may make these findings more useful for educators who are interested in designing similarly-focused learning environments.

⁴⁶ Online environments that include both online and face-to-face interactions are often referred to as hybrid learning environments.

instructional conditions for that environment. (For more about research on hybrid learning environments, see the next section, Continuing Research.)

Another context-related limitation is that all of the case reports used in this study report about online learning environments used in educational (or academic) settings. I did not purposefully choose case reports from educational settings at the exclusion of corporate or military training settings, but I found that all of the case studies I located that met the study criteria reported on educational settings. Therefore, in some ways, the findings reported here may be directly applicable only to educational settings. While there is undoubtedly significant overlap of the values, goals, methods, and conditions used in both education and training online learning environments, training settings are often characterized by important features that are different than those found in educational settings. Some of these features might include:

- monetary compensation of learners tied to course completion,
- a compulsion to enroll in training by a direct supervisor, who controls promotion opportunity,
- supporting multiple knowledge needs, such as basic information and just-in-time performance support, with the same training material,
- “life or death” performance requirements based on the effectiveness of the training,
- requirements to interact with peers who may compete directly for promotion,
- interacting with older, more experienced peers, or
- short training segments that may be regularly re-visited, such as an annual general training topic.

Even though these features might be different in corporate and military training when compared to educational settings, many of the findings of this study can be applied

to these settings. For example, conditions of student motivation are relevant in every instruction situation, as are conditions of access, technical support, and skills and ability. What varies among different contexts, however, is the extent to which conditions related to students, instructors, etc. are met in the specific context, and the extent to which sets of instructional methods should be varied, based on the different sets of existing conditions. Therefore, an educator designing training in a corporate or military setting should find the study findings, including the situationalities framework, relevant to their work.

Multiple Interpretations

The research method that I used in this study results in multiple interpretations of meaning. A “meaning interpretation” occurs when an observer interprets an observed action, or ascribes a particular meaning to observed evidence, such as a student artifact or case report. Interpretations are unavoidable in the investigation and reporting of research, of course. In this study there were at least five stages of interpretation of meaning, which may have influenced the findings. In part, this occurred because I was unable to experience each of the learning environments as a participant. While this fact does not invalidate the findings, it may limit the scope of the findings, since important situationalities that existed in the actual case-specific learning environments may not be carried through all of the interpretations into the study findings.

Starting with the original online learning environment, the first major interpretation occurred as the case report author observed (and sometimes experienced) and recorded descriptive information about the case. Next, the case author interpreted

these observations and wrote a descriptive case report.⁴⁷ This case report was edited, prepared for publication and subsequently published. The editing and publication process may have involved significant interpretations and revisions by a publisher and reviewers.

Then, I read and selected the case report. When I read the report a second (or third) time as part of the analysis phase of the study, I interpreted the author's findings and de-constructed the reported situationality elements to fit the case analysis format that I created. Finally, I used the case analysis reports and interpreted multiple data across many cases when I created the situationality classification schemes, the framework, and the other overall study findings. In all, there were at least five major meaning interpretations.

Of course, these meaning interpretations are impossible to avoid, given the study method I chose. If resources, such as the time and money required to carry out 30 individual case studies myself, had been available to reduce the number of these interpretations, the results might have been different in some way.

Future Research

There are many promising research paths that could be pursued along the lines of the research in this study. The three I will discuss briefly here are: 1) using the same method but in different contexts, such as corporate or military training, 2) adding data for socially interactive "hybrid" learning environments (or comparing data from hybrid environments) to increase the generalizability of the study findings, and 3) expanding the

⁴⁷ These case reports are subject to their own set of significant limitations related to interpretations of reality. These limitations are not explained further in this report. Interested readers are directed to Stake (1995) or Merriam (1988) for more about the limitations of case study research.

concept of instructional conditions to include systemic conditions related to the super systems which enfold the instruction system.

Studies in Training Contexts

This study looked at case studies that reported on learning environments designed for academic instructional settings. This unintentional focus leads to one of the significant limitations discussed in the section above, that of limited context. If additional studies were conducted that purposefully focused on training situations in corporate or military settings, new relationships between situationality elements might be identified. Since other (non-academic) contexts may have different sets of relevant instructional conditions, it is possible that these conditions would lead to other sets of instructional methods, not identified in this study, that would be more effective in these settings. The situationality framework developed in this study might require expansion (and possibly minor revision) in order to be useful to designers working in training settings.

One major challenge for a study such as this, however, is access to a sufficient number of case studies that meet the selection criteria. Some studies performed in training settings contain proprietary, confidential, or classified information, and are not publicly available. One potential source of case studies for training contexts is training-oriented conferences. There are many training conferences each year, and many of these include a “corporate case” presentation track. Unfortunately, many of the case reports presented at these conferences by corporate or military trainers and instructional designers are never written up (or published) as proceedings papers. So, the information they contain is thin when compared to many academic case reports. Possibly this limitation could be avoided if the study method was re-designed to replace the published

case report analysis with numerous in-depth interviews. However, this approach might require significantly more resources (time and money) to implement.

Including Hybrids (Expanding)

Many online learning environments have been designed to support or supplement classroom instructional settings. These hybrid learning environments use many of the same technologies and instructional methods as “pure” online learning environments. However, since the participants in the learning generally meet regularly face-to-face in a classroom, there may be important differences in the design and implementation of social interaction in the online component of the learning environment.

For example, an educator might prefer to engage students in topical discussions only in the classroom, and use the online environment only for file sharing and individual communications. Since the students have regular opportunities to meet and establish social relationships in person, there may be no real need for social interaction online. Or, an instructor may use the classroom only for direct instruction, and rely upon the online environment for all methods requiring social interaction. In this setting the important instructional conditions in the online learning environment may be very similar to those found in this study, but might reflect important situationality differences due to the regular face-to-face class meetings. Since the use of hybrid learning environments is significant, and will probably continue to grow rapidly, it is extremely important to understand the situationalities that influence these environments.

Expanding Conditions to Supersystems

As noted by several case authors in interviews and surveys, when evaluating conditions that influence the effectiveness of instructional methods, it may be very

important to consider the effects of systems that are in some way connected to the instructional system, since all systems exist within a network of other systems (Senge, 1990). Others have written extensively about the importance of evaluating systemic factors when designing educational systems (Banathy, 1991, 1992). Other systems that might exert significant influence on an online instructional system include:

- the university administration system (or the corporate human resources system) – sets faculty expectations and policies regarding teaching, which may influence faculty attitudes, motivation and access to technology,
- the cultural, social, and economic systems of the students – affect the attitudes, values and motivation of the students, and may influence the accessibility of technology as well,
- the student’s family system – affects the student in many ways, especially when the student must work in the home environment, and
- the organization’s information technology system – may affect the software that students and instructors are able to use (and therefore the technical features available for instructional use), as well as controlling access to the learning environment itself (network connection availability and speed, Learning Management System, etc.).

Each of these systems influences the instructional system in many ways, and some of the findings reported in this study reflect this influence. For example, instructional conditions of technology access may be driven by a student’s economic system, since a student who cannot afford a long distance phone connection is unlikely to

participate in online interactions, and a student who lives in a region with undependable network access may not be able to participate effectively. Even though this study considers the influence of some of the external systems in some of the instructional situations, it would be interesting to investigate the importance of any one of these systems on a particular online learning environment. For example, it might be interesting to consider the impact of a formal socio-political policy regarding improving access to technology in a specified region, or for a particular group of students. A study such as that could reveal interesting relationships between the external socio-political system and the effectiveness of online instruction. Understanding these relationships could lead to government policies that support and improve learning in online environments.

Concluding Remarks

The use of online learning environments is continuing to grow at a rapid rate, in educational, corporate, and government sectors. More and more universities and colleges are developing distance education programs to expand their access to non-traditional students. Businesses are turning to “e-learning solutions” to reduce training costs and take advantage of other characteristics of online learning approaches. The United States Army has declared that all residential training programs will be reduced by 20 percent, on average, through the use of online training materials. Since online learning programs are expected to proliferate throughout the education and training sector in the coming years, it is clear that instructional designers and educators need design guidance if they are going to produce high quality, socially interactive, effective learning environments. I am confident that the findings and implications presented in this study will contribute to

meeting this need, and that continuing research using the situationalities and methods approach described herein will provide meaningful design guidance that is applicable to many online learning settings.

Developing the situationalities framework is only a start. The next steps must include testing the framework in actual instructional design practice, and expanding the framework to include more learning environments, especially corporate and military training environments. As these steps are taken, the situationalities framework approach will evolve into a more comprehensive and useful “tool” in the instructional designer’s toolkit.