

# A Horse for Abby: Creating Bridges for Life Skill Development

**LAURA A. MITCHELL**  
University of Kentucky

**KIMBERLY I. TUMLIN**  
University of Kentucky

*Life skill development is essential for social empowerment and civic engagement, which are universally desirable learning outcomes. A longitudinal study using both a BRIDGE process and activity scaffolding was completed. The following hypothesis was evaluated: Structured equine experiences will result in increased third-party perception of life skill development. Multiple measures were used to assess life skills including third-party surveys, student-reflections, scholastic reports, and researcher reflections on participant experiences. A case study was conducted August 2011-March 2013, with a student participant (age = 9yr). Four phases (0, I, II, III) of activities consisting of no interactions and structured interactions were completed. During each phase repeated measures of survey respondents (N=9) were used to assess life skill development. Weekly reflection journals by student and researcher were qualitative and student scholastic reports (grades) were quantitative measures. Third-party perception showed an increase in perceived life skill development using the BRIDGE process. Scholastic improvement occurred while the student was actively participating; however, scholastic improvement was not persistent following termination of activities. This study illustrates that using a structured flexibility scaffold grounded in the BRIDGE process enhanced life skill development and highlighted the importance of mentorship in applied learning.*

**Keywords:** life skills, scaffolding, mentorship applied learning

As many institutions of higher education are including civic and social responsibility in their mission statements, the importance of life skills development and of such skills for college preparedness are growing areas of research interest. Based on prior studies in sport (Gould & Carson, 2008; Camire et al., 2013), youth programming (Duerden & Witt, 2011), and in light of third-party perception of life skill learning (Boleman et al. 2004) research on life skill development should focus on quantitative and qualitative data, longitudinal studies, and examination of skill transferability. Collectively, the concept of life skills “refers to a large group of psycho-social and interpersonal skills which can help people make informed decisions, communicate effectively, and develop coping and self-management skills that may help them lead a healthy and productive life” (Sharma, 2011). Boyatzis (2011) indicates that traditional models of competency learning for leadership roles, in which individuals need to evoke emotional and cognitive learning, are not adequate. Effective mentors tap into “emergent awareness” and bring it to the forefront of knowledge; yet, there is still the question of intentional teaching of life skills (discussing definitions and introduction of how to build a team or acting responsibly) and the effect of positive mentorship or modeling in an applied-learning environment (Zimmerman et al., 2002). It is this process of developing life skills that warrants addressing in curriculum at the collegiate level.

Evidence of community violence on a global scale (World Health Organization, 2008), awareness of youth socioeconomic status on health development (Halfon, 2014), and the link to life skills development and emphasis on positive psychology (Larson, 2000) as mitigating risk for future tendencies toward violence or loss of civic responsibility, has also renewed interest in assessing the impact of life skills development and sustainability of such skills. Two of seven strategies preventing interpersonal and self-directed violence listed by the World Health Organization (2008) includes, “(1) increasing safe, stable and nurturing relationships between children and their parents and caregivers; and (2) developing life skills in children and adolescents.”

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*AUTHOR NOTE: Laura A Frakes-Mitchell, MS, has a background in equine science, farm management, and agriculture. Mrs. Mitchell's most recent research ventures include tobacco management. Furthermore, personal awareness, skills development, and how an agricultural lifestyle intersects in personal and professional development are areas of Mrs. Mitchell's interests. She is corresponding author and may be contacted at [lmitchell01@alum.midway.edu](mailto:lmitchell01@alum.midway.edu). Kimberly I. Tumlin, PhD, has a diverse background including industry research and development, administration in higher education, and over 10 years of undergraduate teaching, curriculum development, and student and faculty mentorship. Currently, Dr. Tumlin is serving as Assistant Dean, Academic and Faculty Affairs, in the College of Public Health. In addition to her administrative role, Dr. Tumlin is Adjunct Faculty in the Department of Preventive Medicine and Environmental Health and continues her passion for teaching and learning in both traditional and online classrooms.*

lence has lasting effects on communities, individual mental health, and employment. Determining methods of teaching life skills which are fun, interactive and promote the constructs of applied learning would be beneficial to all disciplines (Sharma, 2011). This brings institutions of higher learning to a crossroads, if students should be civically and socially prepared, then alternative learning opportunities should be quantified as appropriate methods of fostering such skills.

As institutions of higher learning are becoming more competitive in attracting faculty and students, there exist additional pressures on both groups to demonstrate learning in a quantitative manner. Furthermore, an administrative pressure on faculty to document learning is often driven from accreditation pressures. Much like competitiveness in sport has increased the need for athletes to perform at increasing levels of special emphasis, there is need for structured approaches to meet assessment outcomes. This is particularly important for new faculty or graduate students embarking on learning how to teach. Assessment of applied experiences, specifically those involving animals, can be challenging, and standardization of life skills measures is necessary (Duerden & Witt, 2011). Engaged participants may have satisfaction in completing such activities, yet Postman (1984) cautions to avoid confusion regarding entertainment value and education. The draw of applied learning, such as adventure education, interacting with animals, or other play-based learning, can be perceived as more about entertainment and less about transformation. Extension education emphasizes animal interactions to enhance third-party perceptions of life skills in the areas of responsibility, goal setting, self-discipline, decision making and self-esteem (Boelman et al., 2004). Schwartzman and Bouas Henry (2009) strongly encouraged the need for longitudinal studies in applied learning, and this sentiment is echoed in reviews of life skill development in sport (Gould and Carson, 2008), in human-animal interactions (Cole 2005; Boleman et al., 2004) and in youth programs (Fitzpatrick et al., 2005). So how do faculty balance infusion of applied learning with other institutional pressures? Often, graduate or fourth-year students help to fill the gap between faculty work load and completion of such applied-learning experiences. This reliance is mutually beneficial in the learning process and can be used as a competitive draw for institutions. Students who act as facilitators for applied-learning experiences not only must have both life skills to become leaders and have self-sufficiency, but they must also effectively learn how to apply life skills to remain competitive in the workforce. Workforce preparedness in terms of skills needed to translate scientific principles into management and public policy is driving new graduate programs (Bechert & Cronk, 2012). Therefore, a challenge of creating a learning environment and not just a novel experience is a very real issue faced by faculty to meet competitive pressures asserted by institutions. Finally, the need to ensure that appropriate structure is provided to graduate students or other assistants would aid in the design, promotion and implementation of such programs.

Based on these insights, a longitudinal study designed using a BRIDGE process (*Build, Roles, Innovate, Design, Go, Evaluation*) and scaffolding of activities. The following hypothesis was evaluated: Structured equine experiences will result in increased third-party perception of life skill development.

## METHOD

### PARTICIPANTS

A case-study student was selected based on age (age=9 yr), availability to participate in activities over the duration of the study, and a demonstrated lack of understanding of foundational life skills. Life skills included patience, leadership, work ethic, organization, self-initiation/self-starting, confidence, listening, communication, respect, and responsibility (Duerden & Witt, 2011; Field, 2000). Life skill understanding was assessed using oral and written questioning of the student. As a note, the student and the mentor were relatives. While this was not a selection requirement, the selection component of availability over the 20-month study was facilitated by this relationship.

The mentor in this study was initially an undergraduate student in the final program year. During this study, the mentor transitioned to graduate school. The study protocol was continued by the mentor to ensure consistency in the mentor-student relationship. Like the student, the mentor also participated in an initial life skills understanding screening prior to designing applied methods using the BRIDGE process and activities scaffolding.

Third-party participants (N=9) were selected based on their authoritarian role in relationship to the student and having a sustained and close proximity relationship to the student. This involved a mixture of relatives and public school teachers. These criteria were used with intent to have multiple measures of notable observed changes in the student's knowledge and progression during the trial. Third-party participants were oriented on life skills presented in this study and instructed on how to use the survey to assess the student's expression of life skills. Permission to assess the case-study student was obtained from legal guardians as outlined by the institutional human subjects review board. Third-party participants and the case-study student had the option to refuse participation at any point in the study.

### MATERIALS

A horse facility that included a sheltered area and an exterior, open area was chosen specifically for a quiet atmosphere. The time of planned activities was again chosen to avoid other horse-related activities or extraneous participant involvement. The goal was creation of a stable, quiet environment in which proposed activities were the primary factor in the case-study student's learning. Environment was identified in the *Build* step of the BRIDGE process as a key factor to creating capacity for learning success.

Four horses were used throughout this case study. Initially, observation of several horses in their natural habitat, history of training, and observed characteristics were used to determine each horse's suitability. Secondly, horse selection also involved the student. In this manner, the mentor was able to evaluate the situation for safety and risk factors in response to the student's inherent manner of interacting with the animals as part of the *Role* step of the BRIDGE process. Each horse was restrained in an enclosure, and the student was instructed to groom the horse (using standard tools) to further ensure interaction quality. Selection of appropriate horses, which varied in breed, age and size, (Missy, PC, DD, and Dakota) were pivotal to transition from Phase I to Phase II. Missy and PC were used in Phase I, due to their behavior, physical size, and ability to provide incremental challenges to the student. The horses DD and Dakota were used in Phase II, again due to incremental challenges presented to the student.

### PROCEDURE

This case study was conducted from August 2011 to March 2013 and was divided into four phases. Depending on the phase, activities included horse interaction on the ground or mounted activities in both closed and open environments. Negative controls of no horse interaction were also implemented. Table 1 demonstrates the four phases, duration and related activities, and measures during the study. The procedure design, measures, and third-party surveys were approved by the institutional human subjects review board.

**Table 1. Procedure duration, activity and measures for case study.**

Phase	Duration	Activity	Measures
0	1 month	No Horse Interaction	Surveys and Grades
I	8 months	Ground Activities	Surveys, Grades, Reflection, Photographs
II	6 months	Mounted Activities	Surveys, Grades, Reflection, Photographs
III	5 months	No Horse Interaction	Final Surveys and Grades

**Phase 0.** This phase was a baseline free of horse interaction or other structured applied-learning activities.

**Phase 1.** Weekly sessions were intentionally designed to ensure that the mentor fostered the concept of emergent awareness (Boyatzis, 2011) combined with intentional teaching of life skills and modeling (Zimmerman et al., 2002) as part of the *Build* and *Roles* aspects of the BRIDGE process. At the start of each weekly session, the horse would be prepared by bringing it into an enclosed area, restrained. Following initial grooming, the student would attach the lead rope to the horse's halter, release the restraint, and lead the horse to an obstacle course. Initially, obstacles were designed intentionally to force choices and encourage decision making. Finally, the student would lead the horse back to the barn and repeat the grooming process. Phase I was intentionally highly structured.

**Phase II.** Two scaffolding experiences were introduced in the Phase II sessions to promote movement through levels of thought and reflection adapted from Ash and Clayton (2009). Two horses, DD and Dakota, were used. In addition to grooming as completed in Phase I, both physical mounting and changing environments from an enclosed area to an open, external area were intentional transitions. These intentional transitions were part of the *Innovate* and *Design* components of the BRIDGE process and included use of the cascade shown in Figure 8. The student would independently put on a helmet and mount the horse using the five-gallon bucket as a stool. Once mounted, the horse was independently guided through obstacles. Following completion, the student would dismount and lead the horse. The student instructed the mentor on how to remove the tack (as part of intentional student engagement) and, as in Phase I, the student repeated the grooming process.

**Phase III.** This was the final phase in which no horse interactions or other applied learning occurred. The purpose of Phase III was to determine if there were sustainable impacts of the applied-learning activities.

## MEASURES

Multiple measures were used to assess life skill development, including third-party surveys, student reflections, scholastic reports, and researcher reflections on participant experiences. Life skills that were selected for measures included patience, leadership, work ethic, organization, self-initiation/self-starting, confidence, listening, communication, respect, and responsibility (Duerden & Witt, 2011; Field, 2000). Third-party participants were instructed to evaluate the student's regular expression of life skills and to reflect on the level with which the student expressed each skill. For example, the concept of respect included multiple levels of expression. In this study, respect for others (human and animal alike), as well as expressions of respect for inanimate objects, was explained as holistic life skill expression.

Third-party participants used a survey that included ten life skills and two additional questions: "What is the student's ratio of hearing a command to completing a task given?" and "List your expectations for this student to learn about life skills while working with horses." The two questions were intended only for descriptive purposes and are not presented in the results.

Figure 1 demonstrates the line scale approach for participant ratings. To use this scale, the ends of the line are set at 0 in. (0 cm) and 3.5 in. (8.89 cm). The marks were then measured manually using a ruler and converted to a numeric measurement. For instance a mark made at the highest end of the scale would be considered a 3.5. This scale was used to eliminate forced choice and equal distancing of answers as found on a Likert scale. Utilizing this type of scale when the same participants are repeatedly rating on the same survey aids in ensuring that participants don't recall exactly what answer they provided previ-

ously, as would be much easier to do with a five-point Likert scale. This procedure was employed to obtain the most objective response when working with the same participants over an extended time frame.

Figure 1. Sample line scale questions from third-party survey.

1. What is the student's respect level?

low respect high respect

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2. What is the student's responsibility level?

low responsibility high responsibility

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3. What is the student's personal confidence level?

low confidence high confidence

Scholastic scores at each progress report (every nine weeks) were reviewed. Letter grades were converted to a numeric scale by setting a number equal to each letter grade the student received. For example, an "A" was set equal to a "1," a "B" was set equal to a "2," etc. The reason for this conversion was to ensure that both the life skills survey and the grades were on a similar numeric scale. Specific fundamental classes were chosen for grade measures, which included English/Language Arts, Mathematics, Science, and Social Studies/History.

As part of the BRIDGE process, written assessments were included in the design. Assessment emphasis included directed questions appropriate to activities scaffolding. For instance, a question asking the student to identify parts of the horse was one of the foundational or knowledge-based questions. Towards the end of the study, questions asking the student to draw connections between the activities and school life were included.

Feedback such as a grade or critique was not provided to the student, thus freeing the student of perceived pressure to participate or to please the mentor. The student was informed that these writings and drawings were optional each session. Student drawings and reflections were not originally intended to be a means of gauging changes; however, observations in the manner and language used in answers, handwriting/penmanship, and the amount of detail in illustrations were apparent and warranted discussion.

As a baseline, third-party surveys were collected in Phase 0. During Phase 0 the student's scholastic reports were also recorded. Measures during Phases I, II, and III included third-party surveys, scholastic reports, and student reflections. During Phases I and II, the nature of daily activities was recorded in journal entries following each session.

The student answered pre-determined, knowledge-based questions that were linked to learning objectives. Qualitative comparison of the student's handwriting, grammar, spelling, neatness, and artwork was observed at each phase to further characterize life skill data from third-party surveys. Furthermore, to record sessions, static photographs were obtained.

## RESULTS

### DATA ANALYSIS

Third-party surveys were used as quantitative data using a 3.5 in. line scale with end points defined by descriptors that included "low" and "high," or "poor" and "good," or "no" and "strong." In this manner each line served as a sliding scale from left, with the most extreme, and in this survey, most desirable measure being at the right end. Survey participants were verbally instructed to mark on the line any spot relative to end points for which they would evaluate the student's expression of the life skill. The marks were assigned a numerical value between 0 and 3.5 measuring the line in inches using a ruler. This line scale prevented forced choice such as in a Likert scale, so the third-party respondents were less likely to choose the same answer in repeated measures over the duration of the study.

For each life skill (N=10), marks were averaged for all survey participants to determine individual life skill value, as well as averaged by Phase to describe overall life skill development. These averages were then used to tabulate results on a percentage basis. Scholastic scores were also converted to a common scale; for example, a grade of A=1, B=2, and so on. Data were initially analyzed using a repeated measures ANOVA; however, due to having only one degree of freedom, the homogeneity of variance assumption failed. This was likely due to the surveys being randomly collected without participant identifiers, and the inability to pair data across the study. As such, averages and standard deviations were assessed using Proc Means in SAS version 9.3 (2012) as relative changes in terms of percentages, and trends upward or downward were evaluated. Trends in reflections and photographs were highlighted and visual differences in drawings were reviewed.

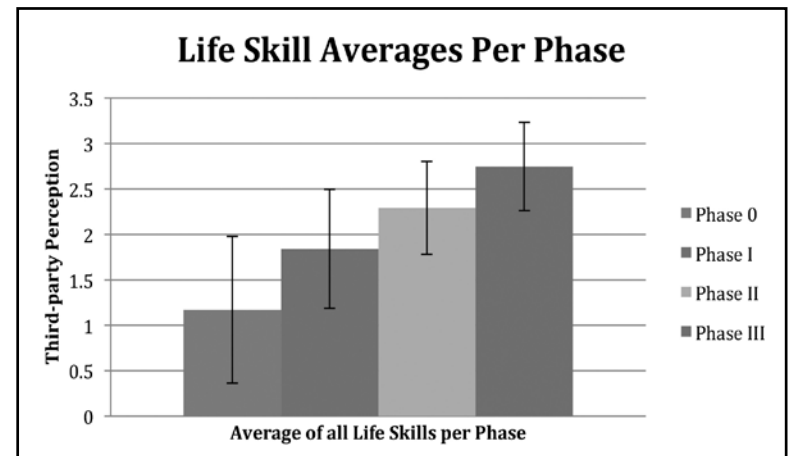
An overall increase in life skill perception was realized (Figure 2). To further describe this trend, differences between phases were manually calculated with Phase 0 remaining the baseline. An increase of 57% between Phase 0 and Phase I was noted. A 95% increase in perception between Phase 0 and Phase II, and 135% between Phase 0 and Phase III was realized. Since the closer to the 3.5 value, the more positive the life-skill perception, an overall increase of 135% was in the positive for all life skills.

A 25% increase occurred between Phases I and II (ground structured interactions to mounted structured interactions). The mounted structured activities (Phase II) compared to the final Phase III, when there were no activities, still showed an increase in perception of life skills at 20%. Finally, a comparison between the start of structured activities

to Phase III (no activities) demonstrated a 50% increase in average life skill perceptions. These data indicate that the greatest change occurred between the start and end of the study, with gradual increases in perception when the student was engaged in incremental applied-learning activities.

In addition to the overall increase in perception, there was a gradual decrease in variability for survey respondents over time (Figure 2). This may have been realized due to the survey participants becoming familiar with the survey tool; however, the nature of using a line scale prohibits exact or repeatable (memorized) choices. The reason the line scale was chosen was to prevent survey participants to be able to recall exactly where on the line they marked and to convert a qualitative response into a numeric value.

Figure 2. Overall average of third-party perception by phase of study.

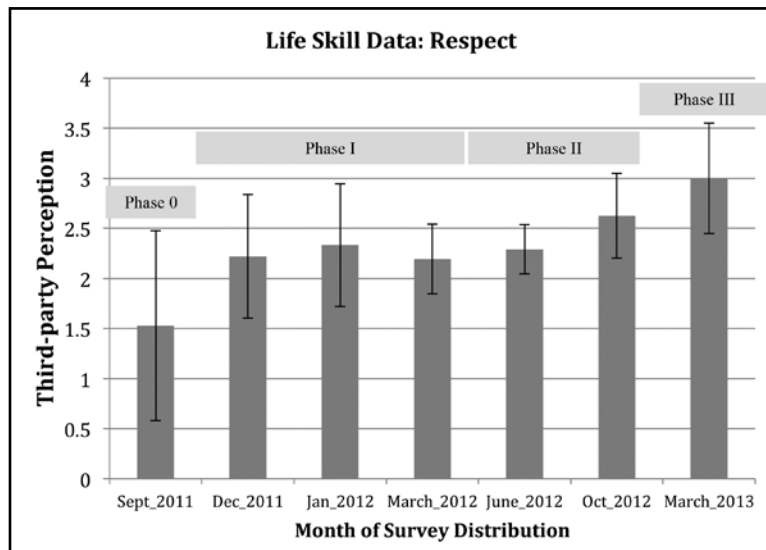


Trends were also assessed by looking at each life skill over the course of the study. There were notable "plateaus" or slight "depressions" in some life skills between Phases I and II (Figure 3). Recalling that the definition of respect included respect for others and for animals or objects, perception data matched the initial screening process. In Phase 0 overall perception was that the student expressed low respect (1.5 on a 3.5 scale, or 40% level of respect), which matched initial screening of the student. An increase in perceived respect between Phase 0 and Phase I was 48% (moving from no activities to structured activities). From baseline to Phase II an increase of 62% and between Phase 0 and Phase III an increase of 97% were also noted. While this shape and increase was positive, these increases did not exactly mirror the overall life skill average, so additional changes between Phases were reviewed to see what impact activities had on perception of life skills.

Only an a 9% increased occurred between Phases I and II, indicating that while activities increased perception of respect from baseline, the type of activity did not substantially increase perception. The difference between Phase II (with activities) and Phase III (without activities) was a 22% increase. While an increase was realized, it was not to the magnitude expected. Much like the overall life skills averages, a decrease in the variability was elucidated (Figure 3). Other life skills of confidence, patience, organization, and self-initiation followed the same pattern, and particularly, a spike in perception after Phase I established a plateau between structured activities, a slight increase in Phase II with the intentional transition, and a final increase in Phase III.

The skills of responsibility, communication, listening, leadership, and work ethic demonstrated a pattern of gradual increase towards the positive for the duration of the study. These skills did not have the same plateau or slight decrease as seen in the respect model. In these five skills, intentional structuring and even cessation of activities still showed a positive increasing trend in third-party perception of skills. These data indicate that applied-learning activities and intentional scaffolding of activities may result in greater targeting of responsibility, communication, listening, leadership and work ethic than other life skills.

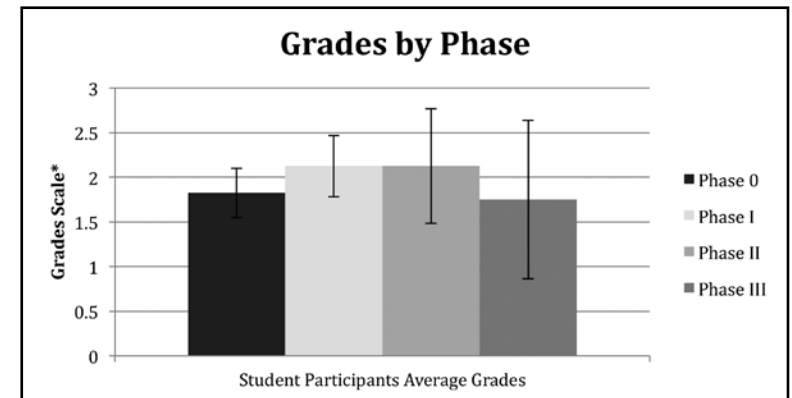
Figure 3. Third-party perception of the life skill: respect



Aside from life skills the student’s scholastic scores were also analyzed to determine trends based on the applied-learning sessions (Figure 4). An increase (higher grades) occurred from Phase 0 to Phase I (moving from no activity to structured activities). No change was

noted during the transition between Phases I and II, which also corresponded to the transition between 4<sup>th</sup> and 5<sup>th</sup> grade. Between Phase II and Phase III was a 19% decrease in overall grade averages, which was closer to where the student started in 3<sup>rd</sup> grade (Phase 0). It is important to note that at the end of 5<sup>th</sup> grade (Phase III) the student went through a significant life event of family loss.

Figure 4. Average scholastic scores by phase of study



In order to further characterize the student grades, individual grade reports were graphed over time (Figure 5). Phase 0 (3<sup>rd</sup> grade) shows a steady pattern of unsatisfactory grades. In Phase I (4<sup>th</sup> grade) a higher average for the first nine weeks is apparent when structured activities began; however, this decreases slightly during the second nine weeks and stays linear for the third nine weeks, which may be a function of the novelty of the activities. In the 5<sup>th</sup> grade, the peak in grades in the second 9 weeks corresponds to mounted activities. By the third 9 weeks in the 5<sup>th</sup> grade, the student experienced the significant family loss, and a large decrease in scholastic scores was noted.

During Phase I the student’s handwriting appeared sloppy and contained several spelling errors. The student became frustrated easily with questions during Phase I. Gradually throughout Phase I the student began to demonstrate understanding and wrote more neatly with observed confidence and less direction. Improvement in grammar, spelling, handwriting, and neatness continued throughout Phase II in journals and reflections.

Drawings from day 39 (third day of Phase II) and day 51 (15<sup>th</sup> day of Phase II) were visually compared. In the first drawing the student drew the horse much larger in perspective, but the student still had a positive reflection as expressed in a smile (Figure 6). After twelve days of mounted activities, the student changed perspective. On day 51, the drawing demonstrated realistic proportion and included surrounding details. This trend in perspective was interpreted as an increase in

confidence and comfort level with the horse and associated tasks. These qualitative results are not absolute measures of success but do contribute to describing personal development.

Figure 5. Scholastic score's by academic grade level.

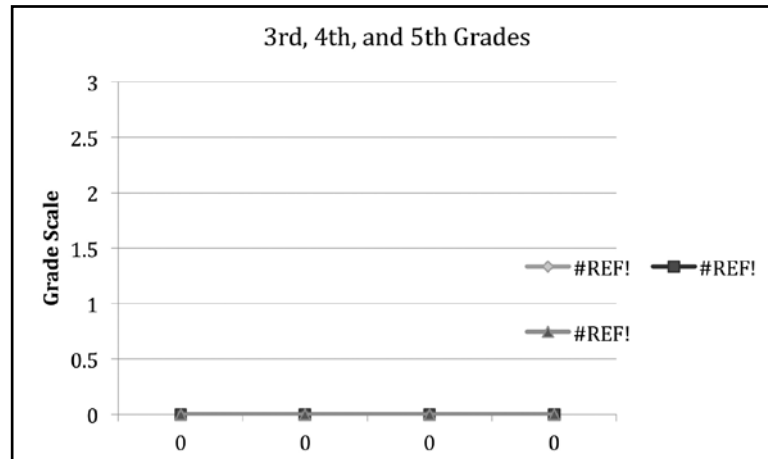


Figure 6. Student Perspective Comparisons, reflections from Day 39 and Day 51.



## DISCUSSION

Life skills learning is cross-disciplinary. By utilizing a structure in which to offer applied-learning experiences, both participants and facilitators can embrace structured flexibility and emergent awareness

to promote an environment of transformation. Structured flexibility is an approach to showing the clear path to success, as students are often overly grade driven, but permitting spontaneous transformation to occur. In this study, the student demonstrated both self-initiated (leaving the confined space early) and mentor-initiated (changing horses/size of the challenge) transformative moments. These were intentional components of the plan; however, the timing was left up to the participant and mentor. During Phase II the mentor had to allow the process to occur when the student asked if she could do the obstacle courses outside of the round pen only four weeks after mounted activities commenced. This is a tremendous request and required courage, motivation, and self-esteem. Interestingly, the mentor found this transition more difficult to manage than expected, as this was “not in the plan.” The mentor’s challenge was to trust, have respect and self-confidence in the power of the experience. Incidentally, this observation points to the need for directors and professors of applied-learning experiences to serve in a stronger mentor-mentee relationship during transition times for undergraduate and graduate students alike. The mentors also have responsibility to engage in the experience and to promote the emergent awareness of both emotional and cognitive learning (Boyatzis, 2011).

Although the core element of applied learning should be reinforced, a structured flexibility approach ensures that learning progresses at individual speeds and durations of learning. In this example, the participant fast-tracked the process because of the choice to move beyond a perceived safety situation and into a more challenging experience. While this seems like a small step, sensitivity to student awareness of limitations and how to foster self-discovery of how to get beyond these limitations are the very nature of transformation. Sensitivity to this moment as an educator is vital to ensuring a quality and effective learning experience.

Building critical reflection in higher education is imperative for developing actively contributing professionals. In a global society that advances due to the nature of its diversity and interconnectivity, there exists a continued need for broadening student views and assessment of how learning is accomplished. In today’s academic environment, faculty are challenged with balancing teaching with research, service, publication, and their own professional development to remain competitive. Administratively, pressures to provide evidence-based decision making to meet accreditation, student enrollment, and student retention goals often put more pressures on faculty to document student progress. The nature of applied learning can positively contribute to institutional progress, as the cycle of development of life skills, critical reflection at progressively higher levels, and creative solutions enhance learning environments. In essence, these transformations can be used as marketing tools, professional development for faculty, students, and when provided to administration, as documentation for accreditation. In this manner, the experience of applied learning has far-reaching impact beyond the participant and benefits more widely than perhaps initially expected.

## BUILDING A BRIDGE

This study used the BRIDGE process to implement the applied-learning experience. BRIDGE building includes six phases: *Build*, *Roles*, *Innovate*, *Design*, *Go*, and *Evaluate* (Figure 7). This process was developed and used as a facilitated planning tool that is easy to follow and implement.

Figure 7. The bridge process of building applied-learning activities.

B	R	I	D	G	E
Build a foundation including learning objectives, type of experience and desired end result	Roles of those involved in the experience including participants and mentors are identified	Innovate directed and intentional activities to foster expression and learning	Design step-wise structure on which to scaffold activities using the cascade approach	Go! Get participants active and engaged. Permit structured flexibility in all activities.	Evaluation of the foundation, structure, activities and assessments for effective learning

## BUILD

Perhaps the most important phase of the process, *Build* is the general planning phase. This process is not unlike development of any sound research design or course development but should remain the emphasis and grounding feature. Three steps were followed in this study as part of the *Build*.

- Step 1—Determine applied-learning experience desired for either group of participants or for program outcomes. Link those experiences back to program or institutional level outcomes where appropriate as an additional layer of building connections.
- Step 2—Build desired learning outcomes, with emphasis on process. Use action verbs. For instance, “to study” is not considered measurable, but “to identify” and “to demonstrate” are actions that can be measured in a variety of manners. The assessments for this step can be infused in a traditional lecture-based component of a classroom. In this study, these assessments occurred as part of the post-activity journaling.
- Step 3—Determine how the activities contribute to the learning objectives. If a study abroad is desired but does not contribute to the learning objectives, then perhaps a domestic study away would be more appropriate. This step aids in ensuring that novelty is not the only draw for the applied-learning experience.

## ROLES

What are the expected participant and facilitator roles? Who is going to do what? In the BRIDGE approach the importance of guests or mentors in the application phase cannot be underestimated. The data in this study support the importance of mentorship. Building peer-peer and mentor-mentee learning experiences that go beyond editing or working on the next step, but adapting more active reflective processes, have been recommended in applied-learning models to deepen the experience (Ash & Clayton, 2009). Data indicated that during participation in structured activities, overall improvement of scholastic scores occurred.

The grooming process— part of Phase I, ground activities— was explained to the student prior to horse selection. In Phase II, the student began explaining to the mentor how to achieve a process. This shift in roles helps participants find their own mentorship ability and, in the authors’ opinion, creates a faster approach to emergent awareness than when a participant is continuously directed. A caution is that the mentor needs to create that safe environment prior to encouraging a shift in roles. The BRIDGE foundation helps facilitate this safe environment.

Based on these data, transferability of skills may be linked to the mentor-mentee relationship and less to the activity itself. In the area of life skill development and adventure education, bringing in former (successful) program participants is recommended to focus debriefing activities (Gass, 1985). In this way, the common bond between participants and mentors is the experience itself. Relationship building permits some trust bond to be developed between the mentor-mentee. In this study, it was vitally important that the participant had the capacity to build trust with the mentor, as the risk involved with working around horses is greater than a traditional classroom experience. A mutually beneficial trust-building occurs between the mentor-mentee and, as such, prepared both individuals for transitions and transformations due to the experience. Trust is a vital soft skill that leads to preparing better leaders and principles of professional skills that are being addressed as cross-disciplinary challenges in graduate education (Bechert & Cronk, 2012); therefore, building BRIDGES between mentors and mentee at the undergraduate level should translate into more productive graduate students and graduates.

Halfon (2014) indicates that at-risk youth have greater obesity and mental health disorders due to lack of optimal resources for developing strategies for health promotion and well-being. Cole (2005) explained that specific life skill improvements were noted in anger management, self-awareness, leadership, problem solving, workplace skills, and interpersonal skills. By comparison, a control group of students who did not undergo an applied experience, but received the same six-week training on life skills as the test group had significant increases in the areas of leadership and anger management. Cole attributed the differences to the length of time the test group had to practice the skills and the infusion of structured teamwork (2005).



Fusion of applied-learning principles at various ages and directed interactions may provide essential opportunity for changing the health, and general social landscape of educational and learning environments. Given these data, applied learning is clearly more than just the experience. In order to achieve lasting impacts, thoughtful and intentional learning with reflection is vital. As institutions and programs look to increase student retention and to provide industry connectivity, then infusing mentor programs and directed intentional relationship building would positively contribute to the experience itself.

## INNOVATE

This is the phase in which more research for best practices is needed. The emphasis in this phase is on developing new activities or directed assignments that ensure learning outcomes are met in the *Build* phase. In this study, this was accomplished through one-on-one interactions with the mentor and major professor; however, this could be accomplished, for example, with faculty or student focus groups, literature reviews of procedures, or adapting current assessments to the objectives. A collegiate level assessment that could be adopted is a degree of separation assessment. In this assignment, students are asked to locate current events (within the last few months) using any media source. The students, either in groups or individually, determine how the information presented in the article can influence their respective fields. This can be a direct impact or indirect impact. A scaled approach to grading would be completed by assessing a set number of points to each degree and how completely the student(s) connected the assessments. This type of assessment engages students in making industry-

related connections, while retaining a global view point, hence bridging an academic and professional gap.

## DESIGN

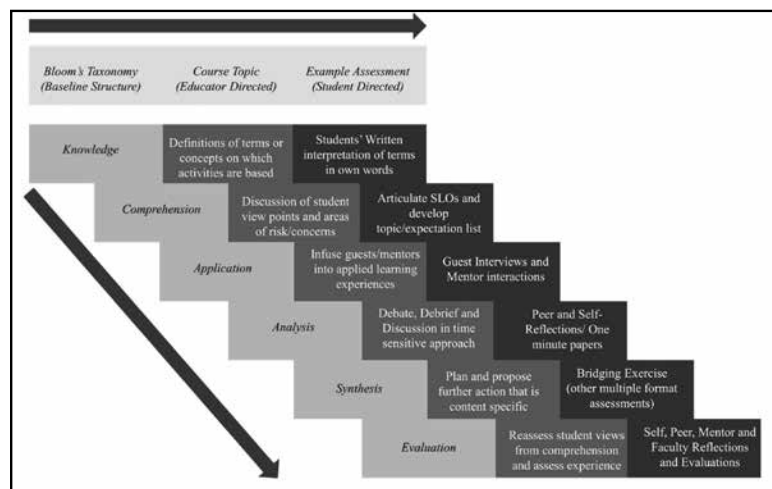
In this phase, step-wise activities are designed following multiple assessment methods that infuse oral, written, peer, and individual works. Figure 8 demonstrates how a waterfall or cascade approach for scaffolding courses helps guide progression of learning activities structured specifically on Bloom's taxonomy of educational objectives (1956).

This approach has value for individual learning activities or to scaffold an entire course or an educational program. Progression is intended to be from top to bottom and from left to right, with educators using the first cascade as a grounding or planning structure and the second cascade as an action plan. The inclusion of students in the planning process in the second cascade and mentors in the third cascade is intentional. Based on the data presented here, both of these steps are pivotal to ensuring that transitions, and the often desired transformations are made.

Learning assessment is often problematic, so areas for student growth must be clearly delineated. Cross-disciplinary objectives recommended specifically from this study include stressing the importance of building capacity for reflection as previously indicated by Ash and Clayton (2009); promoting student ability to desegregate what, who, when, where, and why regarding a topic or event; and creating clearly documented outcomes. Initial infusion of these areas can be through specific assignments and should include various media to enhance holistic communication in a level-appropriate manner. In this study, this scaffold was applied over the entire experience, as well as within individual days that the participant was involved in these experiences. To effectively use this approach, the participant context must be applied prior to starting the cascade. For instance, the participant in this study could not complete a higher order critical reflection exercise, so clearly directed questions were initially provided to aid in developing reflection skills. As a caution, when applying this approach at the undergraduate or graduate level, assessments and discussion need to be appropriate to the student group represented, as being too basic will result in loss of interest and being too advanced will eliminate the safe learning environment that is desired for transformation.

There are some key points in this scaffolding approach. Core to student success in a higher education model is that students have foundational active listening skills. Educators should provide opportunity for evidence-based discussions supported with well-defined learning objectives. These objectives are aligned with assignments that introduce students to reflection strategies through multiple learning mechanisms. A simplistic approach is to place these learning objects on both the daily activities in a handout or in an online format and on assignments.

Figure 8. Sample cascade scaffolding for applied-learning activities.



In this study, the student was both instructed orally and had the objectives/activities written in the reflection journals. Furthermore, the student reflected daily on what was accomplished in the activities. This reflection was reviewed to determine if the activities were meeting the initial objectives. This checks-and-balances approach also ensures that the process is focused but does not eliminate spontaneity during the activity itself. This extra attention in linking activities to the learning experience provides a structured and directed approach. Clarity of these boundaries provides a safe and positive learning environment. By having students involved in the process at the comprehension level, then safety boundaries, which are inherent to a transformative experience, are addressed early in the course. Moreover, this approach provides documentation of how learning outcomes were assessed, as is often required by accreditation.

## GO

In the BRIDGE process, this is the activity step. The nature of the activities is directed by the prior steps, but the emphasis in this phase is the experience. In this process, structured flexibility is a theme that needs to infiltrate every activity. For instance, in this study, involvement of horse selection is one manner in which student was used in the process to build capacity for learning; however, the planning requires first to have safe animals with which to work, and this falls to the mentor. The structure limited size and types of horses available but was flexible because the student was involved in the selection of the horse for the activity. Again, level-appropriate and activity-appropriate choices are vital to ensuring engagement in the process.

Standards of teaching to the test or providing objectives prior to testing decreases student motivation (Tumlin et al., 2009). So while it is important to have a structured approach to applied experiences, it is important not to provide the “test ahead of the test.” The point of a scaffold approach is to ensure that participants know boundaries, direction, and reasons for progressing. Learning occurs when moving beyond individualistic constraints and discovering how others think and approach problem-solving. Ensuring that participants engage in the experience in this phase is vital.

## EVALUATION

This is the assessment, reassessment, and document phase. Ask various questions. “How did the process work?” “Were expected outcomes met?” “Were assessments appropriate to outcomes?” In order to make this process work, being critical reflectors will enhance future endeavors. Some major pitfalls include not having the right roles, missing the intent of the activities, having outcomes that are not measurable, dealing with unforeseen circumstances, losing support of faculty, students, or administration during the process, or losing focus of the process.

Emotional responses can steer the direction of the student’s learning capabilities (Torres, 2008). If emotions are left out of the learning experience, then is true learning achieved? Often emotional, psychological, and physical safety is intertwined in applied learning. With regards to horse interaction, Boyd and Haveruk (2006) state, “Frequently...our clients begin to share their emotional and psychological issues of safety and vulnerability... they [compare their habit to] standing behind an angry horse.” During this study the horse, Missy, passed away from natural causes, and during Phase III, the student lost a dear family member. Although there was clearly a deeper connectivity with the family member, the passing of Missy served as a precursor learning experience. The mentor was very careful in this stage to permit the student to pursue emotional safety while working with PC, a replacement horse. This unplanned transition in Phase I did not lead to negative impact on scholastic scores or third-party perceptions. The loss of the family member in Phase III did impact scholastic scores but not third-party perceptions. These results allude to the question, What is it about applied-learning experiences that can aid in transitions and impacting coping strategies? When Missy passed, the student took a greater leadership and confident role with PC. Trotter et al. (2008) explain that relative to facilitation and mentorship, when a student becomes frustrated or distressed, the next step is to process (quickly) why he or she is frustrated and to try another approach. Relating frustrations to a life experience that the student had previously or was currently experiencing resulted in greater success. In this example, if the student had been engaged in applied learning during Phase III with the concurrent loss of a family member, then transferability of life skills may have been achieved. This is one example of how post-activity evaluation is necessitated for characterizing future endeavors.

## STAYING ON THE BRIDGE

Quantifying the applied-learning experience is a continued challenge (Duerdman & Witt, 2011; Schwartzman & Bouas Henry, 2009). In this longitudinal case study, multiple measures of life skill enhancement were used. Several other case-studies and programs have been developed to observe the effect of horse interaction (Lentini & Knox, 2009; Hutchison, 2009, Tereault, 2006). Scholastic scores illustrated an increase while actively involved in human-animal interaction. Unfortunately, once the sessions were completed, a sustainable or notable increase of scholastic scores was not attained. Martinek et al. observed this lack of transferability to the classroom environment (2001). Explanations could involve the entertainment or novelty factors of interacting with horses as suggested in the initial increase in scores in Phase I, or that traditional public school compulsory exercises do not permit exploration and reflection that is translated to a grade or assessment. Gass indicated that in adventure education, as an experiential learning model, intentional transferability should include implementing condi-

tions into the design, resulting in transferring skills. Many types of applied-learning experiences are novel to the participant, and as such, clear scaffolding should be created to ensure that once the novelty of the experience wears off, then learning is sustained. Participant learning should mimic future needs, providing practice of transfer while still in the program, and having consequences of learning to be naturally derived, which places the responsibility of learning on the participant, are also important (1985).

Gauging life skills through a line scale aided in preventing the survey participants from recalling an exact mark or value which they had chosen the previous time they completed the surveys. This was completed with intent to create less bias in recording repeated measures. By using a line scale a range of selection was made available to each participant. This approach was useful in assessing learning skills as opposed to having specifically listed options, which could be advertently or inadvertently replicated.

Along with the student, the mentor also made transitions during this time in the study. The mentor went from an undergraduate program to application and acceptance into graduate education. Graduation marked a significant transition time, and while not quantitative, qualitative reflection themes mirrored those of the student participant during the transition of Phase I to Phase II. In essence both the student and mentor were learning to “mount” new challenges in both applied activities and in life. The metaphor of mounting a horse can be applied to other models in which transformative experiences are desired or encouraged. A need for continued deep reflection has resulted in greater motivation to complete tasks (Tumlin et al., 2009). Similarly, while motivation was not the focus, a sideline effect of relationship building and active participation resulted in reflection themes of greater personal awareness, enhanced motivation, and overall patience to live the experience. These observations are in agreement with prior human-animal research models (Cartinella, 2009; Cole, 2005; Waite, 2011).

As part of this study, the mentor engaged in the reflection process both at the personal level and in review of the student’s journal entries. Several concurrent transitions were noted, although were not designed into the project, contributing to the structured flexibility of this project. A natural age/growth and development process occurred as the student transitioned through grade levels. Two transitions occurred, with the student aging from 9 to 10 years old and transitioning from elementary school to middle school (5<sup>th</sup> to 6<sup>th</sup> grade). Today’s culture is such that students around this age are faced with external pressures and are often challenged with adult decisions earlier than in prior generations. Life skill development is considered a key part in this decision making process (Fitzpatrick et al., 2005). Without adequate life skills, poor decisions cause individuals to be at a high risk for mischief and even imprisonment. Even though this student was not considered at risk, a program for applied-learning activities may be vital to providing pathways to success for youth and incarcerated inmates (Camire et al. 2013; Cole, 2005, Halfon, 2014). Hutchison (2009) recognized this interac-

tion while stating, “The goals of the program... [are] to teach patience, discipline, and problem solving skills, to help the inmates prepare for release to the parole system...the nature of the wild horses is such that an inmate cannot intimidate, bully, or coerce a reaction from them.” Halfon recommends that facilitation of conditions, which emphasize health, education, family, or mentor interactions, are necessitated for health and well-being of adults. These data indicate that applied-learning activities may provide an outlet for schools, at-risk youth programs, and other youth organizations to provide a path for life skill success. This case study emphasized safe challenges and teachable moments to empower the student to make appropriate decisions.

Immediate processing of the experience aids in developing a learning space as seen in this study and in prior research (Lindsteadt & Williams-Decker, 2009). In this study, the student reflected on the experience immediately following the activity. While this can be challenging in a timed course or semester, it is an important step to follow. Further, the link to mentorship and having directed experiences in practicums and internships enhance the ability to bridge information or knowledge into a synthesis or evaluation level of thinking. Employers desire these types of life skills, and these data indicate that following the BRIDGE process can increase third-party perception of life skills.

A key component to developing life skills with animals occurs when students realize that they are in charge of a 1200-pound animal, increasing self-esteem and confidence, and appropriately challenging safety. This experience is similar to any applied-learning activity in which students push their comfort boundaries. As an example, first-generation college students face challenges that are different from non-first generation students, and this foundation, or baseline of viewpoints, should be considered in designing appropriate, applied-learning activities. Students are then more likely to believe in themselves and have overall better results in their endeavors (Waite, 2011). To aid in life skill development and learning, faculty may need to introduce examples of core concepts to expand student awareness; however, emphasis should be placed on creating a student-centered environment.

## AREAS FOR FUTURE RESEARCH

This case study has opened up several avenues for the continuation of research. For example, how does students’ participation in life skill developing activities as adolescents affect them in their collegiate, adult, and geriatric lives? Could life skill development and “life training” become a requirement of curriculum? What is an adequate mentorship to supply students with the right tools? The amount of time and duration required for this type of applied learning is warranted. Indicating an understanding for transferability, the student reflected that life skills are “something that you should do at home and at school and with the horses.”

For assessment purposes, there exists a need for research that defines adequate time, contact experiences, and structures for learn-

ing. In higher education, the academic calendar dictates duration and timeframe for activities. This study revealed that this type of interaction required scaffolding to keep the student engaged and a strong commitment from the mentor. The challenge for educators is to meet the needs of core competencies, admission and retention efforts, accreditation and structures inherent in ensuring consistent and quality education without losing the flexibility of personalized learning. Life transitions, such as intricacies of coping with death and loss or suffering from violence, should be a future area of applied-learning assessment to determine if specific activities enhance learning. Safety is a major consideration when conducting applied-learning activities. These sessions were conducted by using the horse as a tool to teach the student the definition of life skill; however, other models may also be very effective in life skill development. Continued learning and application of life skills over time are essential components to developing transformational experiences and transferrable skills.

### TAKE-HOME MESSAGE

Consequences of applied learning should be naturally experienced with structured flexibility, and the BRIDGE process provided a good balance between structure and experience. Concurrently, retaining strong mentorship and involvement in constructive, directed and applied-learning experiences during high-risk times is important. This study has demonstrated that personal struggles have an impact on scholastic performance, life skill development, and mentor relationship and can be pivotal to success.

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## It Still Takes a Village: An International Perspective on Technology and Mentorship in the Northwest Corridor

**MARSHA W. RHEE**

Johnson C. Smith University

**LEWIS MCKELIVER**

Johnson C. Smith University

**KAMAURI WHITMORE**

Johnson C. Smith University

*This undergraduate research is part of a new student-mentorship initiative on campus, Success Through Academic Research (STAR), sponsored by the Metropolitan College. Utilizing community-based applied action research, researchers developed a case study on secondary classroom technology usage in IPRC-Kigali, Rwanda, East Africa and in West Mecklenburg High School, Charlotte, North Carolina, United States. The objective of this research was to compare and contrast the educational technology divides at these two secondary institutions. Working with one focus group from each secondary institution, researchers were able to establish an online repository for data collection purposes. In both focus groups—IPRC-Kigali and West Mecklenburg High School—educational technology was imperative as both southern Rwanda and the Northwest Corridor of Charlotte, North Carolina, work to improve overall conditions of their respective communities. In this case study, we collected and assessed not only the computer-generated statistics but also the personal narratives of the students and staff constituting these communities as we sought parallels that yield technology support for both global communities. Face-to-face-interviews, web-based networks, field observations, international communiqués, and extensive scholarship review have provided research inroads for addressing the technological needs of students from Rwanda to the Northwest Corridor of Charlotte, NC.*

*Keywords:* undergraduate, mentorship, technology, secondary education

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