

Original Article

Service Learning in the Helping Professions: Can Speech Pathology Students Design Communication Boards for Public Playgrounds?

Victoria Reynolds, PhD, BSc(Hons), LLB, CCC-SLP

Associate Professor, College of Nursing and Health Sciences, Lewis University, One University Parkway, Romeoville IL 60446 USA

Correspondence: Victoria Reynolds, PhD, BSc(Hons), LLB, CCC-SLP, Associate Professor, College of Nursing and Health Sciences, Lewis University, One University Parkway, Romeoville IL 60446 Email: mreynolds1@lewisu.edu

Abstract

Background: Mounting communication boards in public playgrounds would make facilities more accessible to children with complex communication needs. However, resources are needed to ensure the quality of such installations. Speech-language pathology students may be able to design such boards as part of their coursework, in the practice area of augmentative and alternative communication (AAC), which refers to communication modalities that replace or supplement the spoken word.

Aims: The purpose of this study was to determine student perceptions of using a local daycare setting as a potential client, to develop a communication board, as compared with a more traditional, activity-based, hypothetical, individual client stimulus.

Methods: Eighteen graduate level speech-language pathology students completed a voluntary survey on their learning experiences at the same time as course evaluations. A thematic approach was taken to analyzing qualitative data. Quantitative data were analyzed using non-parametric, descriptive methods.

Results: Students believed the assessment was motivating, fair, and easy to complete. However, it did not increase their interest in the subject matter or help them feel actively involved in the course. Qualitative data revealed: realism/authenticity, properties of the assessment, potential drawbacks of this type of assessment, and themes of engagement in the learning material.

Conclusions: Students felt positive about the purpose and authenticity of the assessment, and believed it should be implemented in the community. Instructors could increase student engagement in the subject material, more generally, by partnering with local municipalities to develop collaborative learning opportunities.

Keywords: authentic assessment, alternative and augmentative communication, speech-language pathology, student, communication accessibility

Introduction

There is growing awareness of the need for inclusivity in public spaces, especially in playgrounds and other spaces oriented for family needs and physical activities (CDC, 2019; Black and Ollerton, 2022). Inclusive playgrounds contain facilities for children with physical, communication and sensory differences, such as sturdy and wide swings to accommodate mobility devices and gardens containing fragrant plants to provide pleasurable stimuli to those who take comfort and joy in such experiences (Fernelius and

Christensen, 2017). Some - but not all – also contain facilities to enhance communication skills in people with complex communication needs (CCN) (Fernelius and Christensen, 2017).

Creating communication inclusivity in public spaces for requires the establishment of a communication system, relevant to the space. The installation of a signage board, with carefully considered vocabulary items, selected with the purpose of facilitating the communication needs of individuals in the space, theoretically is a simple matter. Many such installations are already in existence,

around the world (Derse, 2008). Online stakeholder communities, word of mouth and the snowball effect are combining to increase the visibility of calls for AAC in public spaces. In the near future, the presence of communication boards in public spaces may become ubiquitous. Communication access barriers can be addressed in part simply by providing communication aids and with appropriate resources.

Currently, resourcing remains a barrier to implementation, as such systems require expertise to design and install (Moorcroft, Scarinci and Meyer, 2019). One solution to the expertise problem could be found in students of the helping professions. Graduate speech-language pathology students are required to develop competence in augmentative and alternative communication (AAC), as part of the profession's certification standards (American Speech-Language-Hearing Association, no date). A common learning activity in such courses is the creation of a low-tech communication board, to demonstrate students' operational competency in vocabulary selection, organization and execution of a prescription for an AAC system (Sauerwein and Burris, 2022). The stimulus is usually a hypothetical individual client, with a requirement to design an aid for the client to use in a described communication setting. However, the principles of a space (e.g., a park), its design and its community use could be considered as a stimulus: the needs of the client would be the needs of the community, and the described communication setting would be the use of the facilities in the park. Such an assignment could be used to demonstrate student competence, and also as a real-life installation.

This would be consistent with the principles of authentic assessment (Koh, 2017). The concept of authenticity in assessment has been part of the education landscape for over three decades (Cumming and Maxwell, 1999). Authentic assessments have had wide take-up in education and the health sciences, due to the requirement for students to demonstrate practical application of their didactic learning (Chong et al., 2020).

However, whilst the potential benefit to the community of such an endeavor can be seen, it is unclear whether such a scenario would provide an equivalent experience to students. Further, providing students with practical, real-life opportunities to apply their knowledge is thought to increase student engagement, and foster interest in the relevant subject. There is value in surveying student opinions about their learning experiences, as a way of engaging student opinions and seeking feedback to shape the learning experience (Kuhn and Rundle-Thiele, 2009; Epstein, 2016).

Aims and hypotheses

This study sought to elicit student opinions about the simulated scenario of using a day care, in comparison to the more traditional, hypothetical individual client, as a basis for developing a communication board for a graded learning activity. The aim of the study was to determine whether students believed the day care assessment was a worthwhile use of their labor, an appropriate inclusion in their graduate coursework, and increased their interest in the course material.

It was hypothesized that:

Students would perceive the day care assessment to be more realistic and more motivating than the traditional assessment;

Students would perceive the day care assessment as a worthwhile endeavor, and an appropriate use of their labor.

Students would perceive their engagement in the AAC course to increase following completion of the day care assessment; and

Students would provide feedback about the properties of the assessment that would contribute to further development of the learning activity.

Methods

This mixed-methods, prospective survey sought student opinions of the experience of using an authentic, institutional client in an assessment context, compared to a more traditional, hypothetical, individual client. This study was conducted with approval of the Committee for

Protection of Human Subjects at the relevant institution.

Participants: All participants were female, aged between 21 and 29 years and were in their third semester of graduate study. Each was carrying a course load of 6 credits, for the five-week summer term. Participation was voluntary and the Helcini Declaration rules were applied for all participants.

Procedures: Students were allocated two, compulsory learning activities as their midterm and final examinations. The learning activities were conducted in Summer 2018, in the context of a graduate-level course in AAC. Examinations were in open-book format, so that all learning materials were accessible during the activities, thus reducing the possibility of recall bias. This format was selected to facilitate comparison of the learning experiences. In previous years, the low-tech AAC learning activity had been assigned as a take-home assignment.

Data were sought in the form of a supplemental course opinion survey, completion of which was optional. The survey was designed using principles drawn from Krosnick & Presser (in Marsden & Wright (eds.), 2010), such as reverse questioning, and responses were sought in a 5-point, Likert scale format. The format was chosen to complement the existing, paper-based, course opinion survey in use at the college. The response rate for the quantitative portion of the survey was 18/18 (100%). A copy of the survey questions is included in Table 1. As part of the survey, students were invited to provide freehand comments on the “day care assessment”, in response to open-ended questions. Not all students provided responses to these questions: “I am also interested in your thoughts. What would you change about the day care assessment?” (n=16), “What, if anything, did you like about the day care assessment?” (n=14), and “Is there anything else you would like me to know as I consider the assessments for next year’s course?” (n=13).

Data analysis: Responses from the 10 Likert-scale questions were tallied. Initially, responses were assigned a numerical value, with values of one and five representing the extremes of the scale.

A median was calculated to determine the direction of the majority of the responses. However, there were a large number of neutral responses present. In order to account for these and to accurately report student agreement or disagreement, neutral responses were omitted. A percentage of the remaining responses that were in agreement or disagreement (as applicable) was calculated. Freeform responses were transcribed by hand, to remove the data from the participant and their quantitative responses, which ensured that coding was blinded. Responses were coded into themes, as per thematic network procedures (Attride-Stirling, 2001), with a view to developing a thematic network from the data. Themes were determined as being consisted of words, phrases or other linguistic units expressing a single idea. Where multiple ideas were expressed within one linguistic unit (e.g., a complex sentence), the responses were duplicated so that each theme could be considered individually, in relation to other themes.

Results

Quantitative data: The raw responses to the survey questions, including neutral responses, are depicted in figure 1. Student agreement/disagreement responses are presented in table 1. Questions one, three, five, seven and twelve are reverse-scored. For those questions, a median value of below three, or the percentage disagreement with the statement, are indicative of an overall positive response to the stated issue.

Qualitative data: Three organizing themes were identified: realism or authenticity, commentary on the properties of the assessment and factors that could be drawbacks to implementing such an assessment. From the organizing themes, the global theme of feasibility was identified. Organizing themes are explored below.

Realism or authenticity: The assessment was authentic, and this was valued: Participant comments on this theme were positive. Students were favorably disposed toward the assessment for this reason.

Two students used the term “*realistic*” in their response. Two students mentioned “*real life*” or “*real world*” settings

One stated that the assessment was

“more applicable to what we had been learning”, whilst another thought that “these boards should be placed on playgrounds”.

Another student considered the aspect of community advocacy, stating that such as assessment

“emphasized AAC [as a tool] for language development in typically developing children as well”.

Properties of the assessment: The assessment contained some positive aspects, but the student experience could be improved:

Commentary on the properties of the assessment identified aspects that were both liked and disliked.

The “*site visit aspect*” (two participants), the “*idea and intention*”, and the possibility to use creativity in the assessment

(e.g., “*be creative in terms of what to include on the board*”, “*allowed us to think outside the box*”;

three participants) were cited as positive factors.

One participant found the assignment “*interesting*” and two others simply stated that they “*liked it!*”. In response to the request for changes to the assessment, on student responded “*nah, it’s good!*”.

Aspects of the assessment that were perceived as negative were the length (three participants) and the format.

Specifically, one student stated a preference for “*more specific questions*”, while two wanted the assignment as a take-home project rather than an in-class exercise (“*should be a project outside of class*”).

One student preferred a group presentation. Another stated that it was difficult to

“create something so complex on the spot”.

Two participants stated that they had studied for the assessment with an individual client in mind, not an institutional setting.

One student stated that they

“expected a child client, not an environment”.

A further participant stated a preference for an individual client, and another felt that it

“was easier to do an assessment on an actual client”.

One student mentioned being “*thrown off*” by the setting as the client, although they

“liked the day care assignment better than the adult assignment”.

Five students wanted issues to be covered, or linked more, in class, e.g.,

“would be beneficial to practice these in class”.

Potential drawbacks: The assessment contained pitfalls and some barriers that could not be overcome:

Several students made specific comments about individual clients as the stimulus: one felt it would be “*easier*”, one felt it would be more

“practical and realistic”.

Five students commented on the product of learning: four felt that the assessment was not a good test of their learning, e.g.,

“A quiz would be a better test of knowledge”, “I don’t feel that the midterm and final testing my understanding of the material”.

One student stated that they

“didn’t learn anything from that assessment”.

Yet, another student

“felt it was more applicable to what we had been learning in class in terms of application”.

From the organizing themes, the global theme of interest, and engagement, can be understood. Overall, students valued the authenticity of the

assessment and the idea behind it. By including student feedback from this study into revisions of the assessment, as well as the course overall, some of the negative aspects reported by students could be either overcome, or obviated

somewhat. Thus, the global theme suggested by these qualitative data is one of feasibility of this learning activity, from a student perspective. However, interest in the learning activity did not generalize to the course material in general.

Table 1. Responses to quantitative survey questions, with neutral responses removed from those in agreement or disagreement with the statements.

| Question | Neutral responses | % agreement/ disagreement* |
|---|-------------------|-------------------------------|
| 1. It was harder to complete the day care assessment, compared to the individual client assessment. | 7 | 7/11 (63.63%) |
| 2. I felt more motivated to complete the day care assessment task than the individual client assessment. | 10 | 7/8 (87.50%) |
| 3. It was difficult to complete the day care assessment because there wasn't enough information about communication. | 8 | 7/10 (70.00%) |
| 4. It is worthwhile integrating real-life application of course material into assessment tasks. | 2 | 14/16 (87.50%) |
| 5. The day care assessment did not seem realistic enough to make a positive contribution to my learning. | 5 | 8/13 (61.54%) |
| 6. The day care assessment was explained clearly and I felt confident that I had enough information to complete the task. | 6 | 10/12 (83.33%) |
| 7. The day care assessment did not increase my interest in the subject matter of the course. | 8 | 5/10 (50.00%) |
| 8. The day care assessment helped me to feel actively involved in my learning in this course. | 8 | 7/10 (70.00%) |
| 9. The day care assessment was a fair assessment. | 10 | 7/8 (87.50%) |

| | | |
|---|---|---------------|
| 10. The workload of the day care assessment was not appropriate. | 4 | 3/14 (21.43%) |
| 11. The day care assessment was a good quality assessment. | 7 | 5/11 (45.45%) |
| 12. The day care assessment was not an effective way for me to demonstrate my learning. | 6 | 6/12 (50.00%) |

* Questions 1, 3, 5, 7, 10 and 12 were reverse-scored. The percentage shown is that of the students whose responses indicated a positive attitude toward the aspect of the assessment in each question.

FIGURE 1.

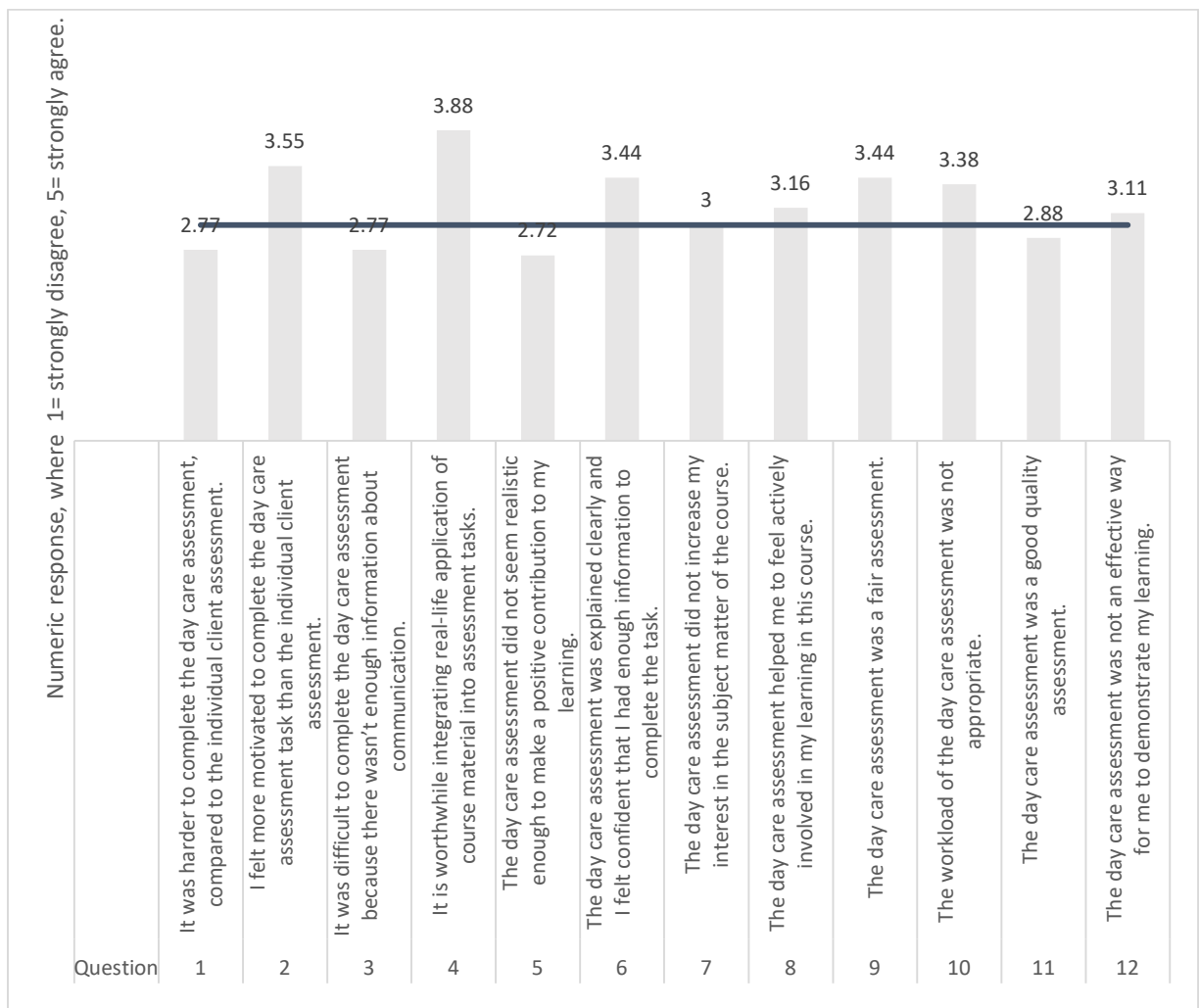


Figure 1. Mean of raw responses to survey questions.

Discussion

Generally, student opinions toward the day care assessment were positive. Whilst it could be posited that few students were delighted by the prospect of a major assignment as part of their summer coursework, both quantitative and qualitative responses demonstrated that students viewed this learning activity as authentic and could see its potential utility in community settings. The high response rate to the survey indicated a willingness to be involved in the development and evaluation of new learning activities. This is consistent with research in higher education that suggests that students welcome opportunities to be involved in their courses in novel ways (Friedlander and Macdougall, 1992; Hounsell, 2003).

The large number of neutral responses to the survey questions was interesting but perhaps expected. Given that 16 students then proceeded to provide freeform feedback, it cannot be said that this reflects indifference towards the issue. Student involvement in developing assessments is not a new concept (Boud and Falchikov, 2007). These data suggest that perhaps students prefer to have more control over the feedback that they provide, than merely answering survey questions. The qualitative responses are valuable, but the increased uptake of the opportunity to provide subjective feedback is significant, and should be considered when seeking student opinions.

Motivation, authenticity and worthiness: The majority reported being more motivated by the setting, compared to the individual client, as the stimulus scenario. This was reflected in the qualitative data, where students liked the site visit aspect of the assessment and the opportunity to be creative. Students felt that there was enough information in general, and specifically about communication, to allow them to complete the learning activity. Overall, students preferred the day care assignment to the individual client assignment, when the survey questions sought to elicit a comparison. Students also felt that the setting was realistic.

Worthy of separate mention is the overwhelmingly positive response to the concept of authenticity. Termed “real-life

application” in the survey, this question yielded the smallest number of neutral responses and the most agreement. Authenticity was a theme extracted from the qualitative data. Students felt that this concept was a good one, both for them and for the community.

The quantitative data also supported this hypothesis. 87.5% of students felt more motivated by the day care assessment and also that applying real-life information in learning activities is worthwhile. These data suggest that students see such endeavors as worthwhile, and suitable vehicles for their labor.

Engagement: Half of the students did not feel that the assignment increased their interest in the practice area of AAC. One student commented that the subject was “*boring*”. Less than half felt it was a good quality assessment. The majority felt that the workload was not appropriate, and made relevant suggestions in their freeform responses (e.g., around format and timing). Although, 70% of students felt that the day care assessment did instill a sense of being actively involved in their learning. This may be because the assessment was presented to the students as a pilot, for which their feedback would be welcome. This factor, rather than the actual assessment, may have been implicated in these responses. These feelings of involvement in learning could be capitalized, to extend to the subject matter itself.

Feedback on the assessment itself: Two of the organizing themes extracted from the qualitative data related to the assessment itself: its properties and potential drawbacks. This indicates that students took advantage of the opportunity to provide frank feedback about their experiences. The data provided relate to improving the student experience, and is a valuable opportunity to shape the task to better meet the needs of all stakeholders.

There were aspects of the assessment, and participants’ experience, that were negative and could not be overcome (e.g., the perception that an individual client would be easier, or requests for other learning activities such as quizzes in lieu of this task). However, there were also negative aspects that could be adjusted, based on student preference. These included the

timing, length, and format of the assessment. Students could be briefed in advance of the nature of the client; indeed, were a take-home assignment format implemented, many of the concerns raised by participants such as length and examination format would be obviated.

The drawbacks included the preference of some students for an individual client scenario, having studied for an individual client scenario or reporting that such a scenario would be easier. Presumably, students felt that they would be better suited to achieving a higher grade for the task. By making the nature of the assessment more transparent, students would shape their study habits accordingly. Achievement of good grades is a constant, and common, concern for students. Individual student preferences are important, yet it may not be possible to accommodate each and every student preference. This highlights the importance of proper preparation for the task, which would be more easily done if the assessment were implemented as a take-home project. It may also be possible to use smaller, formative learning activities to build up to this project, which would provide students with the practice, clarity and increased guidance they looked for. For example, in an activity designed to immerse students in the concepts of core and fringe vocabulary, a requirement to identify core and fringe vocabulary relevant to different activities, would assist students to develop skills in vocabulary selection that could be applied to this learning activity.

Requests for more detailed information, more specific questions to respond to and increased clarity were present in the qualitative data. Yet, the majority reported that the assessment was explained clearly and they felt they had enough information to complete the task. The majority also disagreed with the concept that the assessment was difficult because of a lack of information. A desire to promote deep learning through critical thinking is one of the factors that motivates higher education faculty to assign authentic assessments (BoarerPitchford, 2014). To accommodate these requests, instructors must strike a delicate balance. Students should have sufficient information to be successful in their work, yet, assessment

criteria that are too directive have been shown to decrease deep learning (Gulikers *et al.*, 2006). This would void the purpose of using an authentic assessment. Thus, the contradictory nature of these data speak to that balance: it appears that students felt they had enough information, but wanted additional guidance.

Further, student requests for a group presentation format are consistent with the notion that an authentic assessment should include an opportunity for the student to defend their work (Koh, 2017). In its current format, the assessment provided an opportunity to do this in the form of a written rationale, which was graded by the instructor. If the learning activity were assigned as a take-home project, the product could be presented in class, or in a more formal symposium format, which would allow stakeholders (other than the instructor) to interact with the students and provide feedback on their work.

Interestingly, students discussed assessments in the context of the product of learning. There were positive and negative perceptions of this. Students felt that the assessment either was, or was not, a good test of their understanding of the material, or of the material covered in class. Students didn't mention practical application of the material, which is one of primary reasons for utilizing authentic assessment in coursework. It is arguable that it is the application of knowledge, rather than just the knowledge, that is the purpose of vocational graduate programs such as speech-language pathology (Boud and Falchikov, 2006). However, students may not share, or even be aware of, this view. It is recommended that instructors emphasize this aspect of learning when speaking with students about coursework, assessments and future clinical practice, in order to increase engagement in the course material.

Limitations: These data represent the views of one course cohort from a rural campus of a state university system. Thus, these findings may not generalize to students in other tertiary settings. Due to word of mouth, students were likely aware that the "day care assessment" was a new assessment to the course, thus introducing a source of bias around the task. However, despite

these limitations, these data provide a promising rationale for further exploration of this concept. Due to the solo nature of the course instruction, it was not possible to blind the grader to the identity of the submissions. Thus, comparison of grades between learning activities was not possible. In order to determine whether a similar assessment to the “day care assessment” yields equivalent learning outcomes, such a comparison is essential and should be included in any future research. Whilst these data may indicate that such a learning activity is feasible, based on student opinions, they do not speak to grades, which is arguably the most important aspect of a learning activity, from a student perspective.

Implementation recommendations: An assessment of this nature may be best assigned as a project, rather than an exam. This would allow students time to apply their knowledge of the principles of AAC to the setting, and to be creative around issues such as vocabulary selection, iconicity and layout. A site visit could be included, as well as more detailed information about a hypothetical user of the space. More specific questions could be included to facilitate student thinking about rationales for their clinical decision-making in this activity. Another option would be for students to display their work, and include their rationales in an oral presentation. Regardless of format, students should be provided with guidelines as to expectations for the length of their pieces supporting the justification of their work. The decision as to whether to implement the assessment as a group or individual project relies largely on the SLOs for the course and how they are integrated into other learning activities.

Conclusions: The product of a graduate-level learning activity, embedded in an AAC course, could be used to design communication boards to mount permanently in public spaces. Students view the use of a setting as a stimulus for a learning activity as feasible, and welcome the inclusion of authentic tasks in assessment activities in their course work. The findings of this study could be used to design an assessment that contributes positively to student experiences and provides a service to the

community. Course instructors could focus on ways to utilize these factors to increase student engagement in the course material.

References

- American Speech-Language-Hearing Association (no date) *2020 Certification Standards in Speech-Language Pathology*, American Speech-Language-Hearing Association. American Speech-Language-Hearing Association. Available at: <https://www.asha.org/certification/2020-slp-certification-standards/> (Accessed: 12 January 2022).
- Attride-Stirling, J. (2001) ‘Thematic networks: an analytic tool for qualitative research’, *Qualitative Research*, 1(3), pp. 385–405. Available at: <https://doi.org/10.1177/146879410100100307>.
- Black, R. and Ollerton, J. (2022) ‘Playspace users’ experience of a socially inclusive playspace: the case study of Livvi’s Place, Port Macquarie, New South Wales, Australia’, *World Leisure Journal*, 64(1), pp. 3–22. Available at: <https://doi.org/10.1080/16078055.2021.1894230>.
- BoarerPitchford, J. (2014) ‘Assessment Practices of Instructors in Community College’, *Community College Journal of Research and Practice*, 38(12), pp. 1067–1082. Available at: <https://doi.org/10.1080/10668926.2011.567175>.
- Boud, D. and Falchikov, N. (2006) ‘Aligning assessment with long-term learning’, *Assessment & Evaluation in Higher Education*, 31(4), pp. 399–413. Available at: <https://doi.org/10.1080/02602930600679050>.
- Boud, D. and Falchikov, N. (eds) (2007) *Rethinking assessment in higher education: Learning for the longer term*. New York, NY, US: Routledge/Taylor & Francis Group (Rethinking assessment in higher education: Learning for the longer term), pp. ix, 206.
- CDC (2019) *Disability and Health Disability Barriers | CDC, Centers for Disease Control and Prevention*. Available at: <https://www.cdc.gov/ncbddd/disabilityandhealth/disability-barriers.html> (Accessed: 30 August 2022).
- Cumming, J.J. and Maxwell, G.S. (1999) ‘Contextualising authentic assessment’, *Assessment in Education*, 6(2), pp. 177–194. Available at: <https://doi.org/10.1080/09695949992865>.
- Derse, C. (2008) ‘Accessible Picture Communication on the Playground’, *Perspectives on Augmentative and Alternative*

- Communication*, 17(4), pp. 131–134. Available at: <https://doi.org/10.1044/aac17.4.131>.
- Doris Yin Kei Chong *et al.* (2020) ‘Learning to prescribe and instruct exercise in physiotherapy education through authentic continuous assessment and rubrics’, *BMC Medical Education*, 20, pp. 1–11. Available at: <https://doi.org/10.1186/s12909-020-02163-9>.
- Epstein, B. (2016) ‘Five heads are better than one: preliminary results of team-based learning in a communication disorders graduate course’, *International Journal of Language & Communication Disorders*, 51(1), pp. 44–60. Available at: <https://doi.org/10.1111/1460-6984.12184>.
- Fernelius, C.L. and Christensen, K.M. (2017) ‘Systematic Review of Evidence-Based Practices for Inclusive Playground Design’, *Children, Youth and Environments*, 27(3), pp. 78–102. Available at: <https://doi.org/10.7721/chilyoutenvi.27.3.0078>.
- Friedlander, J. and Macdougall, P. (1992) ‘Achieving Student Success Through Student Involvement’, *Community College Review*, 20(1), pp. 20–28. Available at: <https://doi.org/10.1177/009155219202000104>.
- Gulikers, J.T.M. *et al.* (2006) ‘Relations Between Student Perceptions Of Assessment Authenticity, Study Approaches And Learning Outcome’, *Studies in Educational Evaluation*, 32(4), pp. 381–400. Available at: <https://doi.org/10.1016/j.stueduc.2006.10.003>.
- Hounsell, D. (2003) ‘Student feedback, learning and development’, in *Higher Education And The Lifecourse*. McGraw-Hill Education, pp. 67–78.
- Koh, K.H. (2017) ‘Authentic Assessment’, *Oxford Research Encyclopedia of Education*. Available at: <https://doi.org/10.1093/acrefore/9780190264093.013.22>.
- Kuhn, K.-A. and Rundle-Thiele, S. (2009) ‘Curriculum alignment: Student perception of learning achievement measures’, *International Journal of Teaching and Learning in Higher Education*, 21(3), pp. 351–361.
- Marsden, P.V. and Wright, J.D. (eds) (2010) *Handbook of survey research*. Second edition. Bingley, UK: Emerald.
- Moorcroft, A., Scarinci, N. and Meyer, C. (2019) ‘A systematic review of the barriers and facilitators to the provision and use of low-tech and unaided AAC systems for people with complex communication needs and their families’, *Disability and Rehabilitation: Assistive Technology*, 14(7), pp. 710–731. Available at: <https://doi.org/10.1080/17483107.2018.1499135>.
- Sauerwein, A.M. and Burris, M.M. (2022) ‘Augmentative and Alternative Communication Course Design and Features: A Survey of Expert Faculty and Instructors’, *American Journal of Speech-Language Pathology*, 31(1), pp. 221–238. Available at: https://doi.org/10.1044/2021_AJSLP-20-00070.