ICT Integration in the Workplace: Its Impact to the Community

Jovelin M. Lapates[1]   **Adelda Cunanan[2]**   **Hazel Jean M. Abejuela[3]**

[1]Bukidnon State University, Bukidnon, Philippines, jlapates@gmail.com

[2]Bukidnon State University, Bukidnon, Philippines, adelcunanan13@gmail.com

[3]Bukidnon State University, Bukidnon, Philippines, abejuelah@gmail.com

Abstract: Technology is the portal through which people in the community interacts. In communities all across the nation, community extension, through its educational programs, plays a significant role in shaping communities (Bowling and Brahm 2002). This paper presents a study of how the CAS-IT Department Extension Unit of Bukidnon State University significantly contributes to the welfare of the agency they are connected and the community in general. The study is a combination of qualitative and quantitative research in which descriptive data is generated using specific methods such as questionnaires, unstructured interviews, and observations from the participants. Open-ended questions were employed to capture judgments and observation on actual hands-on in the workplace was also conducted to probe and explain the relationships and contextual differences. General findings revealed that the stakeholders of the IT extension projects are proficient in using word processing, internet and social network, multimedia presentation, electronic spreadsheet. As a result, ICT integration streamline their works, enhance their productivity and make most of their task simpler and faster. Through the CAS-IT extension projects, the stakeholders significantly contributes to the welfare of the agency and the community in general.

Keywords: Information and Communications Technology (ICT), ICT integration, IT extension, workplace, community,

Introduction

Extension is one of the core functions of the University. This function makes Bukidnon State University respond effectively to social and economic needs and demands of individuals and society. Likewise, it takes into consideration local, regional and national development thrust as mandated in RA 7722 otherwise known as the Commission on Higher Education (CHED) mandate. The university's extension programs are also based on the World's Declaration on Higher Education for the 21st century, in which the higher education institution (HEIs) are expected to reinforce the role of service to society by undertaking activities to improve the quality of life of the people.

The Information Technology Department conducted the following extension projects from 2012 to present respectively: 1) Computer Literacy for Barangay Secretaries of Malaybalay City, 2) ICT Literacy for Barangay Apo Macote, 3) Computer Literacy for Out-of-school youth of Barangay Casisang, 4) Empowering Women of Barangay 8, Malaybalay City Through Computer Literacy, 5) Enhancing the Area Coordinators and Emergency Response(ACER) Team Through Series of Seminar-workshop, 5) Bridging the Local Digital Divide of LGU Cabanglasan Towards an ICT Enabled Community and recently CHED K to 12 Transition Program Management Unit awarded Bukidnon State University (BukSU) a DARE TO Research Grant Program on Food Squared: Enhancing Organic Production and Climate Resiliency among Small-Holder Farmers in Malaybalay City, Bukidnon Philippines, a collaborative extension program of the College of Arts and Sciences.

In communities all across the nation, extension, through its educational programs, plays a significant role in the knowledge-creation process and therefore is instrumental in shaping communities according to Bowling and Brahm (2002). An integrated extension approach is needed to address multi-faceted community issues effectively and it is one of the major functions of the academic community in order to enhance the capacity of the faculty in their field of expertise by way of extending it to the partner community/communities Gonzalez (2009). As an academic institution, extension facilitates the access of clientele Christoplos (2010), enables their interaction with partners in research, education and other relevant institutions, and supports them to develop their own technical, organizational and managerial skills and practices. Thus, Bukidnon State University, is socially responsible in bringing its expertise to the community especially in the field of teaching, research, and community extension, Gonzales (2008).

Determining the impact will greatly help improve the planning of a specific program. This study generally aims to find the impact of community extension

activities conducted by the CAS-IT Department on various clienteles. It will find out if how the IT Department Extension Unit conduct the following process in terms of a) Conceptualization; b) Design and development; c) Impact; and d) Evaluation. It will also ascertain the feedback of the clienteles after having been trained in the use of technology.
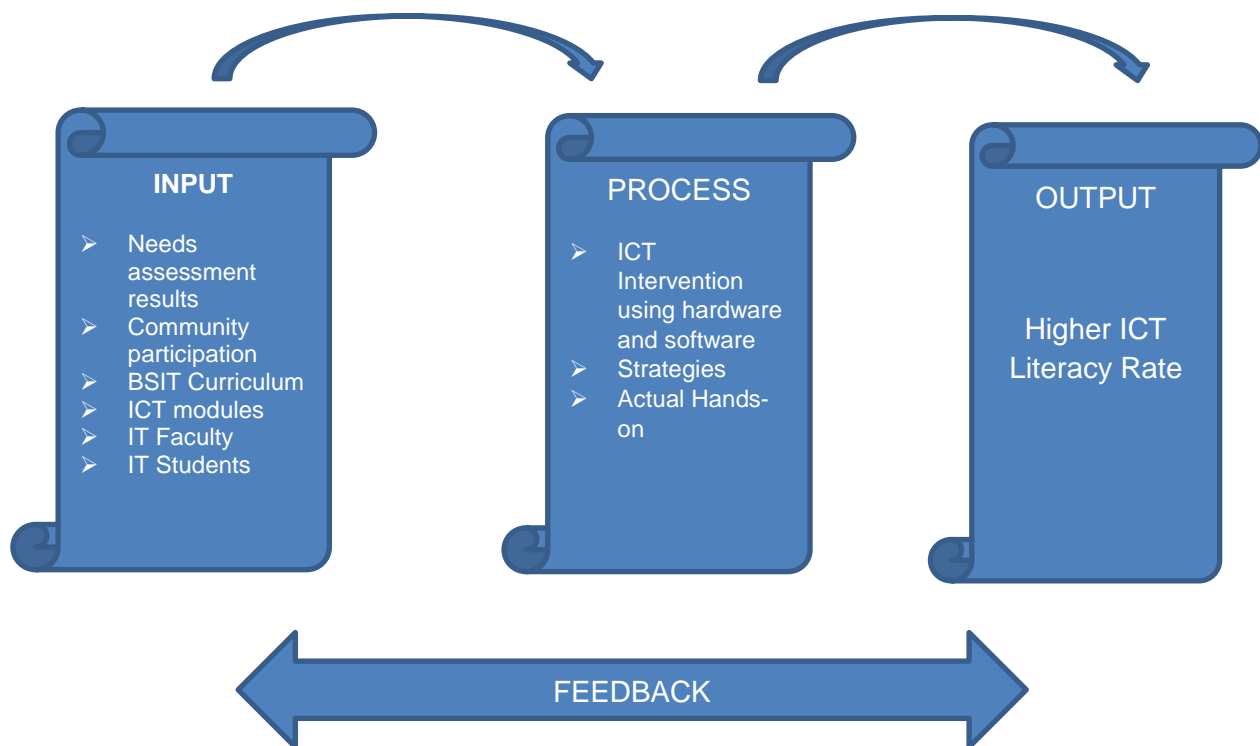
Objectives of the Study

This study generally aims to find the impact of community extension activities conducted by the CAS-IT Department on various clienteles. Specifically, it aims to:

1. Examine the relevance of the training in the following aspects:
   a. Current work;
   b. Future/desired work;
   c. Community needs
2. Analyze the contribution of extension services to strengthen the IT extension projects

Conceptual Framework

Figure 1. Conceptual Framework of the IT Department Extension Program

The figure shows the conceptual framework of the IT Department Extension Program that is anchored from the principles of instructional design by (Gagñe and Briggs, 1974). Input, process and output are set of entities that has a relationships with each other. The attributes namely a) needs assessment results, b) Community participation, c) BSIT Curriculum, d) ICT modules, e) IT Faculty and f) IT Students serve as an input in the implementation of the IT extension program. The IT department through the pool of experts and resources of the university conduct training and workshop to different clienteles as ICT intervention. At the end of the training-workshop, the participants are assessed and evaluated if the IT extension programs has an impact on their lives.
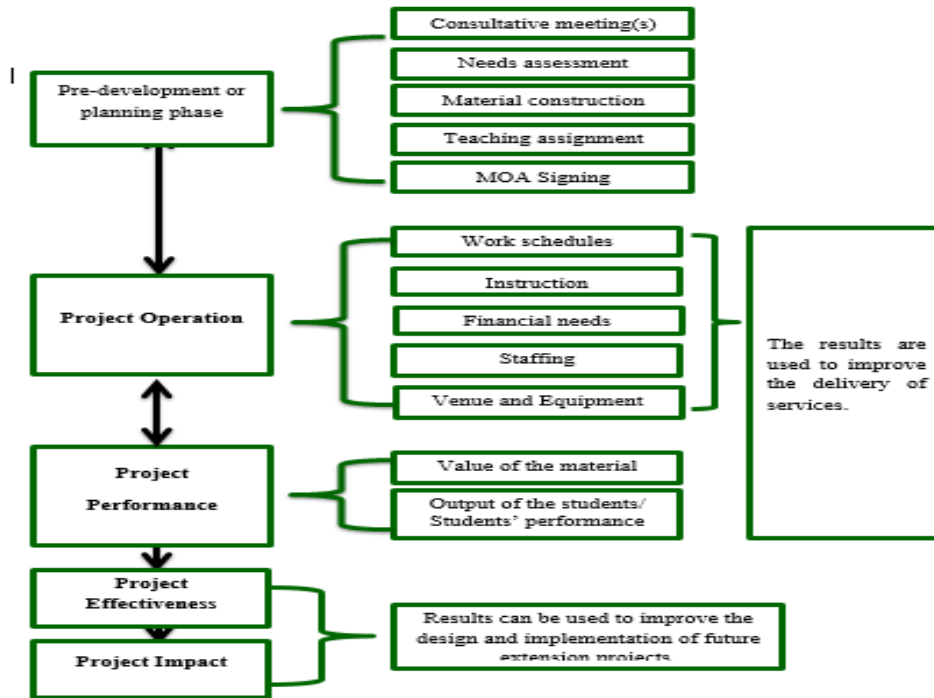
Methodology

The study is a combination of qualitative and quantitative research. A questionnaire developed by Commission on Information and Communications Technology (CICT) on their iSchools project was modified in order to fit with the trainings conducted by the IT department. The result was analyzed,

modified based on the experts feedback and utilized the questionnaire for evaluation. Open-ended questions were also employed to capture judgments and perceptions and allow complex analyses of often non-quantifiable cause-and-effect processes. An observation on actual hands-on in the workplace was also conducted to probe and explain the relationships and contextual differences.

Process Flow of the IT extension projects

Figure 2. Process Flow of the IT extension project

IT Department Extension Projects

Table 1. IT Department Extension Projects

IT Extension Projects	Priority Needs	Designed Activities to respond to their needs	Expected output/Performance in their workplace
a. Empowering Women of Barangay 8 Malaybalay City Through Computer Literacy 2013-2015	Skills on the following ICT topics: ➤ Hardware and software operations ➤ MS Word application ➤ MS Excel application ➤ MS Powerpoint	Conceptualization ➤ Conduct Needs Assessment ➤ Resource Planning ➤ Identification of Beneficiaries ➤ Conduct consultative Meeting ➤ Presentation of Proposal Design and Development	Enhanced ICT Skills in the following Modules: ➤ Hardware and software operations ➤ MS Word application ➤ MS Excel application ➤ MS Powerpoint Application ➤ Internet and social Networking

	Application ➢ Internet and social Networking ➢ Other basic concepts on computer	➢ Presentation of full blown proposal ➢ Approval of the President ➢ Signing of MOA **Implementation** ➢ Actual Implementation based on scope of the project ➢ Project Operation **Evaluation** ➢ Conducts Monitoring ➢ Site Visits ➢ Evaluates the Extension Program ➢ Solicits Feedback for Improvement **Conduct Research Study**	
b. Enhancing the Area Coordinators and Emergency Response Team's Computer Skills Through Series of Seminar-workshops 2013-2015	Advanced Computer Skills on the following topics: ➢ Hardware and software operations ➢ MS Word application ➢ MS Excel application ➢ MS Powerpoint Application	**Conceptualization** ➢ Conduct Needs Assessment ➢ Resource Planning ➢ Identification of Beneficiaries ➢ Conduct consultative Meeting ➢ Presentation of Proposal **Design and Development** ➢ Presentation of full blown proposal	Enhanced ICT Skills in the following Modules: ➢ Hardware and software operations ➢ MS Word application ➢ MS Excel application ➢ MS Powerpoint Application ➢ Internet and social Networking ➢ Photo Editing

	➢ Internet and social Networking ➢ Photo Editing	➢ Approval of the President ➢ Signing of MOA Implementation ➢ Actual Implementation based on scope of the project ➢ Project Operation Evaluation ➢ Conducts Monitoring ➢ Site Visits ➢ Evaluates the Extension Program ➢ Solicits Feedback for Improvement Conduct Research Study	
c. Bridging the Local Digital Divide of LGU Cabanglasan towards an ICT-Enabled Community 2015-2017	Skills on the following ICT topics: ➢ Hardware and software operations ➢ MS Word application ➢ MS Excel application ➢ MS Powerpoint Application ➢ Internet and social Networking	Conceptualization ➢ Conduct Needs Assessment ➢ Resource Planning ➢ Identification of Beneficiaries ➢ Conduct consultative Meeting ➢ Presentation of Proposal Design and Development ➢ Presentation of full blown proposal ➢ Approval of the President ➢ Signing of MOA	Enhanced ICT Skills in the following Modules: ➢ Hardware and software operations ➢ MS Word application ➢ MS Excel application ➢ MS Powerpoint Application ➢ Internet and social Networking

	Other basic concepts on computer	Implementation ➢ Actual Implementation based on scope of the project ➢ Project Operation Evaluation ➢ Conducts Monitoring ➢ Site Visits ➢ Evaluates the Extension Program ➢ Solicits Feedback for Improvement Conduct Research Study	
d. Enhancing Organic Production and Climate Resiliency among Small-Holder Farmers in Malaybalay City, Bukidnon Philippines 2016-2018	Square Foot Gardening	Conceptualization ➢ Conduct Needs Assessment ➢ Resource Planning ➢ Identification of Beneficiaries ➢ Conduct consultative Meeting ➢ Presentation of Proposal Design and Development ➢ Presentation of full blown proposal ➢ Approval of the President ➢ Signing of MOA Implementation ➢ Actual Implementation	Organic Foods in the backyard

	based on scope of the project	
	➢ Project Operation Evaluation	
	➢ Conducts Monitoring	
	➢ Site Visits	
	➢ Evaluates the Extension Program	
	➢ Solicits Feedback for Improvement	
	Conduct Research Study	

Results and Discussions

The participants were evaluated based on their digital competence level in six different ICT modules namely Computer Basics, Word processing, Electronic Spreadsheets, Presentation software, and Internet and Social Network using the following rating scale.

5   I am fully competent with this function/operation and could confidently explain it to others.

4   I am a regular and confident user of this function/operation.

3   I have used/done this function/operation occasionally but need further practice to be confident.

2   I am aware of this function/operation but have not experienced in using it.

1   I am not aware of / not have tried this function/operation/tool.

Table 2. Summary of Responses of the participants in Computer Basics

Item#	Computer Basics	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
A1	Explain the terms Information Technology & Communications Technology	1.7	1.666666667	2.328358209
A2	Identify the different hardware and software components of a computer and how they work together	1.85	1.80952381	2.194029851
A3	Differentiate the different types of software	1.6	1.571428571	2.164179104
A4	Discuss Networking / Communications Technology	1.7	1.666666667	2.179104478
A5	Operate a computer	1.7	1.666666667	2.671641791
A6	Arrange and customize the desktop	1.3	1.181818182	2.462686567
A7	Manage applications	1.65	1.75	2.462686567
A8	Manage files	1.65	1.619047619	2.537313433
A9	Manage a printer	1.75	1.714285714	2.611940299
A10	Troubleshoot the computer	1.45	1.333333333	2.059701493

Table 2 shows the summary of responses of the participants in computer basics in relation to their ICT literacy level. Majority of the participants specifically the women's from Barangay 8 and ACER employees rated 1 which means that they are not aware of / not have tried the functions/operations/tools. The participants from the LGU Cabanglasan mostly rated 2 which means that they are aware of the functions/operations but have not experienced in using it although this participants are office staff, some are teachers and others are barangay workers.

Table 3. Summary of Responses of the participants in Word Processing Software

Item#	Wordprocessing Software	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
B1	Manage documents	1.9	1.857142857	2.865671642
B2	Format text	1.7	1.714285714	2.850746269
B3	Format paragraph	1.85	1.857142857	2.701492537
B4	Format document	1.8	1.714285714	2.671641791
B5	Move and copy text Insert text Delete text	1.85	1.904761905	2.776119403
B6	Insert tables	1.7	1.666666667	2.492537313
B7	Insert pictures and images	1.7	1.619047619	2.492537313
B8	Create letters using Mail Merge	1.6	1.523809524	2.253731343
B9	Preview a document	1.8	1.761904762	2.537313433
B10	Print a document	1.9	1.952380952	2.611940299

Table 3 shows the summary of responses of the participants in using word processing software in relation to their ICT literacy level. Majority of the participants specifically the women's from Barangay 8 and ACER employees rated 1 which means that they are not aware of / not have tried the functions/operations/tools. The participants from the LGU Cabanglasan mostly rated 2 which means that they are aware of the functions/operations but have not experienced in using it although this participants are office staff, some are teachers and others are barangay workers.

Table 4. Summary of Responses of the participants in electronic Spreadsheets

Item#	Electronic Spreadsheets	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
C1	Manage workbooks	1.45	1.428571429	2.104477612
C2	Select cells Enter data in a cell Insert and delete cells Insery and delete rows and columns	1.6	1.571428571	2.253731343
C3	Handle worksheets	1.55	1.523809524	2.166666667
C4	Format data	1.4	1.428571429	2.208955224
C5	Format cells	1.55	1.476190476	2.164179104
C6	Format worksheet	1.45	1.476190476	2.212121212
C7	Create formulas and functions	1.35	1.333333333	2.014925373
C8	Create charts/graphs Format charts/graphs	1.45	1.380952381	2.104477612
C9	Format charts/graphs Print a worksheet	1.5	1.476190476	2.257575758

Table 4 shows the summary of responses of the participants in using electronic spreadsheets in relation to their ICT literacy level. Majority of the participants specifically the women's from Barangay 8 and ACER employees rated 1 which means that they are not aware of / not have tried the functions/operations/tools. The participants from the LGU Cabanglasan mostly rated 2 which means that they are aware of the functions/operations but have not experienced in using it although this participants are office staff, some are teachers and others are barangay workers.

Table 5. Summary of Responses of the participants in Presentation Software

Item#	Presentation Software	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
D1	Discuss basic presentation skills	1.3	1.333333333	2.059701493
D2	Apply appropriate visuals and design considerations	1.45	1.380952381	2.074626866
D3	Manage presentations using a presentation tool	1.35	1.333333333	2.134328358
D4	Create slides Use different slide views	1.35	1.333333333	2.164179104
D5	Apply slide layouts and templates	1.35	1.071428571	1.597014925
D6	Format text	1.3	1.45	2.257575758
D7	Insert pictures and images	1.263157895	1.4	2.212121212
D8	Insert drawn objects	1.35	1.35	2.212121212
D9	Create charts/graphs	1.3	1.35	2.136363636
D10	Create a slide show Apply slide show effects	1.25	1.3	2.138461538

Table 5 shows the summary of responses of the participants in using presentation software in relation to their ICT literacy level. Majority of the participants specifically the women's from Barangay 8 and ACER employees rated 1 which means that they are not aware of / not have tried the functions/operations/tools. The participants from the LGU Cabanglasan mostly rated 2 which means that they are aware of the functions/operations but have not experienced in using it although this participants are office staff, some are teachers and others are barangay workers.

Table 6. Summary of Responses of the participants in Internet and Social Network

Item#	Internet and Social Network	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
E1	Discuss Internet and World Wide Web	1.4	1.45	2.181818182
E2	Access the Web	1.4	1.45	2.318181818
E3	Use Bookmarks	1.35	1.4	2.196969697
E4	Search the Web	1.35	1.4	2.265625
E5	Download web pages	1.5	1.55	2.242424242
E6	Send and receive email	1.45	1.5	2.439393939
E7	Create an Address Book	1.45	1.5	2.151515152
E8	Organize messages	1.45	1.5	2.272727273
E9	Print messages	1.55	1.6	2.363636364

Table 6 shows the summary of responses of the participants in internet and social network in relation to their ICT literacy level. Majority of the participants specifically the women's from Barangay 8 and ACER employees rated 1 which means that they are not aware of / not have tried the functions/operations/tools. The participants from the LGU Cabanglasan mostly rated 2 which means that

they are aware of the functions/operations but have not experienced in using it although this participants are office staff, some are teachers and others are barangay workers.

The participants of the respective projects were evaluated to determine the attainment of the goals and objectives and feedbacks were drawn to determine if the use of technology increases their performance in the workplace or if it improves their quality of life. A scale of 5 to 1 with 5 being the highest and 1 the lowest were used.

Table 7. Summary responses of the stakeholders after the training

Indicators	WOMENS General Average	ACER General Average	LGU CABANGLASAN General Average
1. Relevance of the training			
(a) Relevance to your current work	4.647058824	4.470588235	4.878378378
(b) Relevance to your future/desired work	4.647058824	4.529411765	4.810810811
(c) Relevance to your institution's needs	4.235294118	4.352941176	4.837837838
2. Information/Skills Acquired			
(a) Amount of information covered in the activity	4.529411765	4.411764706	4.555555556
(b) Extent to which you gained ideas useful to your work	4.529411765	4.529411765	4.756756757
(c) Extent to which you have acquired new skills	4.647058824	4.529411765	4.72972973
(d) Extent that this activity achieved its objectives	4.352941176	4.294117647	4.694444444
3. Design of the Activity			
(a) Effectiveness of the activity in maintaining your interest from start to finish	4.529411765	4.411764706	4.797297297
(b) Effectiveness of the visual aids in reinforcing the lessons	4.352941176	4.470588235	4.716216216
(c) Adequacy of time allotted to each topics	4.352941176	4.294117647	4.5
(d) Logic in the progression or sequence of topics	4.352941176	4.411764706	4.540540541
(e) Time allotted for discussions and Q&A	4.352941176	4.352941176	4.472222222
(f) Variety of the training methods used (lecture, exercises, discussions)	4.466666667	4.411764706	4.671232877
4. Class Interaction			
(a) Effectiveness of the instructors in training you to use and appreciate application	4.764705882	4.647058824	4.810810811
(b) Responsiveness of the instructors in answering participants' questions	4.647058824	4.529411765	4.824324324
(c) Interaction between participants and resource persons	4.705882353	4.705882353	4.821917808
5. Sensitivity and assistance provided by department staff	4.588235294	4.588235294	4.763888889
6. In general, how would you rate this project?	4.470588235	4.470588235	4.828125

Table 7 shows the summary of responses of the stakeholders after the training.   Majority of the stakeholders both women's of Barangay 8, ACER employees and office staff, selected teachers and barangay workers rated an average of 4 and higher. This means that the relevance of the training, the information/skills acquired, the design of the activity, their class interaction, the sensitivity and assistance provided by department staff are excellent. In general, the women's of Barangay 8, ACER employees and office staff, selected teachers, barangay workers and some out-of-school youth are fully competent with the functions/operations and could confidently explain it to others.

Conclusion

General findings revealed that the stakeholders of the IT extension projects are proficient in using word processing, internet and social network, multimedia

presentation, electronic spreadsheet. As a result, ICT integration streamline their works, enhance their productivity and make most of their task simpler and faster. In the municipality of Cabangsalan, the program really helped the employees improved their knowledge and skills in computer which they need in performing their duties and responsibilities in their respective office. Some members of the women's organization run their business with the aid of ICT, others are promoted and are proficient in the use of ICT. Based on the training evaluation conducted, participants found the training "relevant" to their current work and that the knowledge and skills gained in the training are "useful" in their work. The result also showed that the training design was effective for a logical progression of topics, use of electronic visual aids to reinforce the lessons and the variety of training methods from lecture to laboratory exercises. Through the CAS-IT extension projects, the stakeholders significantly contributes to the welfare of the agency and the community in general.

References

Cunanan, A. Procedure and Work Instructions(PAWIM) Manual of Bukidnon State University Extension Unit

Manual of Operations of Bukidnon State University Extension Unit

Benson, P.L., Galbraith, J. & Espeland, P. (1998). What kids need to succeed. Minneapolis, MN: Free Spirit Publishing, Inc.

Cooperrider, D. L. & Whitney, D. (2000). A positive revolution in change: Appreciative inquiry. In D. L. Cooperrider, P. F. Sorensen, Jr., D. Whitney, & T. F. Yaeger (Eds.), Appreciative inquiry: Rethinking human organization toward a positive theory of change (pp. 3-27). Champaign, IL: Stipes Publishing.

Gergen, K. (1978). Toward generative theory. Journal of Personality and Social Psychology, 36, 1344-1360.

Ludema, J. D. (2000). From deficit discourse to vocabularies of hope: The power of appreciation. In D. L. Cooperrider, P. F. Sorensen, Jr., D. Whitney, & T. F. Yaeger (Eds.), Appreciative inquiry: Rethinking human organization toward a positive theory of change (pp. 256-287). Champaign, IL: Stipes Publishing.

Nozick, M. (1999). Sustainable development begins at home: Community solutions to global problems. In J. T. Pierce & A. Dale (Eds.), Communities, development, and sustainability across Canada (pp. 45-63). Vancouver, BC: UBC Press.

Rogers, C. R. (1959). A theory of therapy, personality and interpersonal relationships, as developed in the client-centered framework. In S. Koch (Ed.). Psychology: A study of science. (pp. 184-256). NY: McGraw Hill.