

The Interdisciplinarity of Precarity

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Abstract: Through the use of a case study, this paper argues that precarious employment within the Sudbury mining industry is a complex social problem that is best studied through an interdisciplinary lens. The growth and sustainability of precarious employment within the Sudbury mining industry, and the decline of unionization among local mine workers, is a result of converging political, economic, legislative and social factors within a neoliberal Canadian context. To preface these arguments, this paper explores positions both in favour and against an interdisciplinary research approach, contrasting opposing views from within the academic literature. Then this paper discusses the rise of interdisciplinary studies within the modern neoliberal university.

Key Words: disciplinary; disciplinary research; interdisciplinary; interdisciplinary research; mining employment; mining industry; neoliberal university; precarity; precarious employment; Sudbury

Résumé : Au moyen d'une étude de cas, le présent document soutient que l'emploi précaire dans l'industrie minière de Sudbury est un problème social complexe qu'il conviendrait d'étudier dans une optique interdisciplinaire. La croissance et la durabilité de l'emploi précaire dans l'industrie minière de Sudbury et le déclin de la syndicalisation des travailleurs miniers locaux résultent de la convergence de facteurs politiques, économiques, législatifs et sociaux dans un contexte néolibéral canadien. Face à ces arguments, la présente étude explore les prises de position en faveur et à l'encontre d'une approche de recherche interdisciplinaire, en confrontant les points de vue opposés dans la recherche universitaire. Ensuite, il est question de l'essor des études interdisciplinaires au sein de l'université néolibérale moderne.

Mots clés : disciplinaire ; recherche disciplinaire ; interdisciplinaire ; recherche interdisciplinaire ; recherche interdisciplinaire ; emploi minier ; industrie minière ; université néolibérale ; précarité ; emploi précaire ; Sudbury

Introduction

The advantages of interdisciplinary over disciplinary research has been a topic of intense debate within the academy.¹ This paper argues that adopting an interdisciplinary approach can contribute to a more inclusive and well-rounded understanding of complex social problems, such as precarious employment within the Sudbury mining industry. Precarious employment

[...] encompasses forms of work involving limited social benefits and statutory entitlements, jobs insecurity, low wages, and high risks of ill-health. It is shaped by employment status (i.e., self-employment or wage work), form of employment (i.e., temporary or permanent, part-time or fulltime), and dimensions of labour market insecurity as well as social context (such as occupation, industry, and geography), and social location (the interaction between social relation, such as gender and 'race,' and political and economic conditions).²

Understanding precarious employment requires an examination of the political, economic, legislative and social factors that contribute to the rise and sustainability of this form of employment.³ This case study illustrates how an interdisciplinary

¹ Thomas L. Benson, and Raymond C. Miller. "Five Arguments Against Interdisciplinary Studies." *Issues in Interdisciplinary Studies* 1 no. 4 (1982): 38-48; William H. Newell ed. *Interdisciplinarity: An Anthology of the Professional Literature*, (Oxford: Miami University Press, 1997); Allen F. Repko, *Interdisciplinary Research: Process and Theory*. (Los Angeles: Sage Publishing, 2008); Liora Salter and Alison Hearn, *Outside the Lines: Issues in Interdisciplinary Research*, (Montreal: McGill-Queen's University Press, 1996); Kathryn Shailer, "Interdisciplinarity in a Disciplinary Universe: A Review of Key Issues." *Council of Ontario Universities*. Accessed 30 September 2014 <https://bit.ly/38zKqmR>.

² Leah F. Vosko, ed. *Precarious employment: Understanding labour market insecurity in Canada*. (Montreal: McGill-Queen's University Press, (2006), pp.3-4.

³ Andrew Jackson and Mark P. Thomas, *Work and Labour in Canada*, 3rd ed. (Toronto and Vancouver: Canadian Scholars, 2017); James W. Rinehart, *The Tyranny of Work: Alienation and the Labour Process*, (Toronto: Nelson, 2006); Leah F. Vosko, Leah. F. 2000. *Temporary*

approach can be beneficial in the study of complex social problems. To achieve a multifaceted study, an interdisciplinary approach, drawing on theoretical and methodological approaches from a variety of disciplinary perspectives, is required to adequately study the phenomenon of precarious employment. As stated by Vosko, the study of precarious employment requires “... an interdisciplinary approach, informed by multi-method analysis, exploring household dynamics, institutional processes, social and legal norms, and workers’ expression of their agency”.⁴ To enforce this argument, this paper addresses two overarching questions: 1) What are the differences between interdisciplinary and disciplinary research and 2) How do interdisciplinary forms of knowledge, as they are applied to precarious employment, move researchers beyond the limitations of disciplinary forms of knowledge on this topic?

First, this paper explores arguments in favour of a disciplinary approach to research examining definitions of disciplinarity provided in the existing academic literature. Second, this paper explores critiques and criticisms of an interdisciplinary research approach. Third, this paper further compares and contrasts disciplinary and interdisciplinary research arguing that the strengths of an interdisciplinary approach far outweigh any possible negative arguments. Fourth, this paper examines interdisciplinarity within the modern neoliberal university through a discussion of the often opposing views of *interdisciplinarity from above* versus *interdisciplinarity from below*. To conclude, this paper explores how interdisciplinary forms of knowledge, as they are applied to precarious employment, allow researchers to move beyond the limitations of disciplinary forms of

Work: *The Gendered Rise of a Precarious Employment Relationship*, (Toronto: University of Toronto Press, 2000).

⁴ Vosko *Precarious Employment: Understanding Labour Market Insecurity in Canada*. p. 4.

knowledge in order to gain a more holistic understanding of the causes, growth, and effects of precarious employment within the Sudbury mining industry.

Disciplinary vs Interdisciplinary Research

Arguments in Favour of a Disciplinary Approach

According to Repko, “interdisciplinarity is not about competing with the disciplines, or replacing them, but rather about working with them”.⁵ If this thinking holds true, one must understand disciplines in order to appreciate them. Academic disciplines are traditional in their approach with longstanding ways of thinking, learning and conducting research.⁶ Disciplines have clearly defined boundaries to protect against the threat of interdisciplinary thinking.⁷ Krishnan suggests, defining an academic discipline is not a simple task as “[a] ‘discipline’ can be many things at the same time and it is worthwhile to look closely at the various meanings of the word”.⁸ The difficulty of expressing a single definition of an academic discipline is evident by the numerous scholars who have provided insight to this task.⁹ These definitions

⁵ Repko, *Interdisciplinary Research: Process and Theory* p. 232.

⁶ Salter and Hearn. *Outside the lines: Issues in Interdisciplinary Research*.

⁷ Repko, *Interdisciplinary Research: Process and Theory*; Rick Szostak, “The interdisciplinary Research Process”, In Repko, Allen F., William H. Newell, and Rick Szostak. *Case studies in interdisciplinary research*. (Thousand Oaks: Sage Publications, 2012) pp. 3-20.

⁸ Armin Krishnan, “What are Academic Disciplines? Some observations on the Disciplinarity vs. Interdisciplinarity debate”. *ESRC National Centre for Research Methods - NCRM Working Paper Series*. (ESRC, 2018) Accessed January 18, 2018, <https://bit.ly/38Hj2Dr>.

⁹ Mary Taylor Huber and Sherwyn P. Morreale, *Disciplinary Styles in the Scholarship of Teaching and Learning: Exploring Common Ground*, (Merrifield: AAHE Publications, 2002); Repko, *Interdisciplinary Research: Process and Theory*; Salter, and Hearn. *Outside the lines: Issues in Interdisciplinary Research*; Stephen Turner, “What are disciplines? And how is interdisciplinarity different.” *Practising interdisciplinarity* (Toronto: University of Toronto Press, 2000): p. 46-65.

can be divided into tangible and philosophical. Tangible definitions refer to disciplinary academic departments in modern universities which create “lines of wisdom, which provides the value and rationale for the acquisition”¹⁰ of knowledge. Conversely, philosophical definitions refer to defining disciplinary research as the skills and knowledge used to undertake research, or the way to do research, the methodology. One such example is seen in Liinason and Holm’s characterization of interdisciplinarity which they define

[...] as a term for theoretical and methodological cross-fertilization and a crossing of disciplinary borders in a way that suggests that neither or none of the disciplines involved is a satisfactory theoretical edifice in itself. Such cross-fertilization may create new synergetic, holistic, or hybrid fields of thematic research.¹¹

However, disciplines are most easily defined in the tangible sense as “recognizable communities of scholars”¹² or “systems of knowledge”¹³ which have distinctive acceptable language, methodologies, and guidelines for conducting research. They also have a well-established set of standards to evaluate this research. Repko categorizes these systems of knowledge as the Natural Sciences, Social Sciences, Humanities and Applied Professions, in much the same way as today’s academic institutions are organized.¹⁴ Some disciplines can be thought of as lenses through which the world is viewed and interpreted, while others can be distinguished by the phenomena which is being studied.¹⁵ Huber and Morreale write “each discipline has its own intellectual

¹⁰ Angelique Chettiparamb. “Interdisciplinarity: A Literature Review.” (University of Southampton: Interdisciplinary Teaching and Learning Group, 2007). Accessed December 17, 2017, <https://bit.ly/38GyHCZ>.

¹¹ Mia Liinason and Ulla M. Holm. “PhDs, women’s/gender studies and interdisciplinarity.” *Nordic Journal of Women’s Studies* 14, no. 2 (2006): 115-130, p. 118.

¹² Salter, and Hearn. *Outside the lines: Issues in Interdisciplinary Research* p. 20.

¹³ Repko, *Interdisciplinary Research: Process and Theory* p. 51.

¹⁴ Repko, *Interdisciplinary Research: Process and Theory*

¹⁵ Repko, *Interdisciplinary Research: Process and Theory* p. 53.

history, agreements, and disputes about subject matter and methods... community of scholars interested in teaching and learning in that field".¹⁶ Disciplinarians are trained, or regulated, to follow a certain stream of theory, methods and ways of thinking that conform to specific parameters laid out by that discipline over time. Disciplinarians are expected to conform to the norms of that particular discipline which are usually presented in the form of academic journals or governing membership societies and conferences of peers. However, adopting an interdisciplinary approach is like "breaking out of the prison houses of various specialties to the open range, first of a general human knowledge and then of the employment of that knowledge in the great struggles of social and political life – is not a possible human achievement".¹⁷ Here, Fish is relating the regulatory confines of traditional academic disciplines to that of prison houses referred to in the work of Foucault.¹⁸ However, like prison houses, the accepted constraints of academic disciplines are not easily challenged or escapable. In fact, according to Shailer trying to break through disciplinary lines can be risky for one's academic career.¹⁹

While Shailer and Fish²⁰ favour a metaphorical explanation of the term 'discipline', Aram opts for a more literal description defining a discipline as a "quasi-stable, partially integrated,

¹⁶ Mary Taylor Huber and Sherwyn P. Morreale, *Disciplinary Styles in the Scholarship of Teaching and Learning: Exploring Common Ground*, p. 2 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p. 4.

¹⁷ Stanley Fish, "Being interdisciplinary is so very hard to do". *Profession*, 1989, 15-22 as cited in Shailer, Kathryn, "Interdisciplinarity in a Disciplinary Universe: A Review of Key Issues" (C.O.U., 2005), p. 3 Accessed September 30, 2014 from <https://bit.ly/2SDi4Cu>.

¹⁸ Michel Foucault, "Discipline and Punish: The Birth of the Prison". (New York: Vintage, 1977).

¹⁹ Shailer, "Interdisciplinarity in a Disciplinary Universe: A Review of Key Issues".

²⁰ Fish, "Being interdisciplinary is so very hard to do": pp. 15-22.

semi-autonomous intellectual conveniences – consisting of problems, theories, and methods of investigation”.²¹ Aram suggests disciplines are “subject continually to the opening of new or revised ways of framing problems, theorizing, and investigating”.²² It is overly simplistic to see disciplines as static, unchanging and autonomous in and among each other.

Arguments against interdisciplinarity would assert that those engaged in interdisciplinary research lack the “central theoretical core or consensus about the central focus of inquiry is weakened by this lack of cohesion”²³ that a disciplinary base can provide. They argue that perhaps interdisciplinarians are not well rounded but know merely a little about a lot of things. Similarly, Benson argues that unlike a disciplinary view, interdisciplinary studies “rests upon serious conceptual confusion [... and] lack[s] a coherent, defensible sense of their purposes”.²⁴ Interdisciplinary researchers, who lack a disciplinary background, may have difficulty discerning theories or conceptual frameworks applicable to their research and find it difficult to achieve true integration among various disciplines. Opposed to this, Szostak argues that disciplinary research may in fact “ignore competing theories or methods, and they also ignore related phenomena that might cast an important light on the issues addressed by the discipline”²⁵ due to the pressures of academic institutions which have institutionalized the disciplines.

²¹ John D. Aram, “Concepts of interdisciplinarity: Configurations of knowledge and action” *Human Relations* 57, no. 4 (2004): 379-412, p. 380.

²² Aram, “Concepts of interdisciplinarity: Configurations of knowledge and action”, p. 380

²³ Peter Meiksins, “Whither Labor Studies? Lessons from Two Recent Studies. *Labour Studies Journal*,” 27, n. 2 (2002): pp. 7-20.

²⁴ Benson and Miller, “Five Arguments Against Interdisciplinary Studies”, p. 39.

²⁵ Szostak, “The interdisciplinary Research Process”, p 4.

Although researchers who adopt an interdisciplinary approach may criticize researchers who choose to stand by the traditional disciplinary modes of thought in conducting research, “[i]nterdisciplinarity is not a rejection of the disciplines. It is firmly rooted in them but offers a corrective to the dominance of disciplinary ways of knowing and specialization”.²⁶ An interdisciplinary approach allows researchers to provide a well-rounded, broader, or more holistic perspective of the world that is being studied.²⁷ An interdisciplinary approach allows the researcher to draw on multiple disciplines, perspectives or streams of thought and prevents research from being “dominated by a single, stifling orthodoxy that excludes other points of view or other approaches”.²⁸ Repko states that the purpose of bringing together these various perspectives is to produce new knowledge or innovative ways of understanding complex problems.

He claims that he is not disputing the benefit of disciplinary knowledge but rather the control and confinement placed on this knowledge by the discipline. A disciplinary view does not go beyond the “portion of reality that it is interested in.”²⁹ As Salter and Hearn suggest disciplinarity is guilty of “fragmenting and dislocating knowledge, for creating, though specialization, useless units of knowledge having no bearing or application to real social concerns or to the evolution of human thought”.³⁰ Salter and Hearn also state that “disciplinary research in general has neglected

²⁶ Deborah DeZure, “Interdisciplinary Teaching and Learning” *Teaching excellence: toward the best in the academy* 10, no. 3 (1999): p. 3 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p. 38.

²⁷ Julie Thompson Klein, *Interdisciplinarity: History, Theory, Practice*, (Detroit: Wayne State University, 1990); Joe Moran, *Interdisciplinarity* (New York: Routledge, 2010); Repko, *Interdisciplinary Research: Process and Theory*.

²⁸ Meiksins, “Whither Labor Studies? Lessons from Two Recent Studies” p. 7.

²⁹ Repko, *Interdisciplinary Research: Process and Theory* p. 53.

³⁰ Salter, and Hearn. *Outside the lines: Issues in Interdisciplinary Research* p. 34.

particular populations, whether as researchers or as subjects for research. Important issues, points of view and life experiences have been ignored in the normal course of disciplinary research”,³¹ not allowing the researcher to fully understand the experiences of the research participants. As stated by Moran academic disciplines are “limited and confining”³² to researchers, not allowing them to think outside of the disciplinary - specific box, so to speak. Following a disciplinary path gives researchers “tunnel vision”,³³ not allowing a researcher to take a truly in-depth look into the research subject. Disciplinarians may become fixated on one avenue of explanation while overlooking other possible contributing factors. As Sartori states, “[e]ach discipline throws light on a set of variables precisely because other factors are assumed to be external, distal, and equal”.³⁴ Factors external to the researchers’ limited perspective are simply not taken into account. For example, neoclassical economists may restrict themselves to looking at only economic explanations for a specific issues or problem, not looking outside of their disciplinary perspectives to consider related aspects of legal legislation, family dynamics, or environmental impacts which fall outside the usual scope of the economic field. Thus as stated disciplinarians are limited, restricted and confined in their approach.

Repko also points to the inability of disciplinary research to “address comprehensively, much less solve complex problems”.³⁵ He illustrates his case by using the example of global warming. This issue can be looked at through the discipline of biology where research can provide explanations for several biological effects of climate change on lakes, rivers

³¹ Salter, and Hearn. *Outside the lines: Issues in Interdisciplinary Research*, p. 166, referencing Smith (1974, 1979, 1990).

³² Moran, *Interdisciplinarity* p. 13.

³³ Repko, *Interdisciplinary Research: Process and Theory* p. 29.

³⁴ Chettiparamb, “Interdisciplinarity: A Literature Review” p. 8.

³⁵ Repko, *Interdisciplinary Research: Process and Theory* p. 30.

and organisms. Economists, on the other hand, may look at global warming and they will focus on the financial costs of global warming to corporations; but neither standalone discipline takes a comprehensive look at the whole issue of global warming. A single disciplinary explanation “fail[s] to provide [a] truly comprehensive perspective on the problem that policymakers and the public really need”.³⁶ Drawing on a single discipline would not allow for an in-depth understanding of many of the complex social problems in today’s society.³⁷ In other words, in order to make sense of this ‘mess’, or the multifaceted social problems of today, you need to pick apart the pieces, then arrange them in a manner that allows you to see the factors that contribute, maintain and perpetuate the given social problem. This includes how these pieces interweave within the greater society more broadly.

The benefits of adopting an interdisciplinary approach are perhaps most clearly visualized by Nissani’s metaphor of “fruits, salads, and smoothies”.³⁸ Nissani suggests a disciplinary approach to research can be pictured as individual pieces of fruit which can be placed alongside a second or third piece of fruit but as individual whole fruits have no synergetic aspect or interweaving of ideas.³⁹ Some mixing occurs if fruit is incorporated into a fruit salad (multidisciplinary)

³⁶ Repko, *Interdisciplinary Research: Process and Theory* p. 31.

³⁷ A phenomenalism definition of ‘complex’ is provided by Morin. He states: “...complexity is in fact the fabric of events, actions, interactions, retraction, determination, and chance that constitute our phenomenal world. But complexity presents itself with the disturbing traits of a mess, of the inextricable, of disorder, of ambiguity of uncertainty” (Morin 2008: 5).

³⁸ Moti Nissani, “Ten Cheers for Interdisciplinarity: The Case for Interdisciplinary Knowledge and Research”. *The Social Science Journal*. 34 (2) (1997), p. 201-216.

³⁹ Nissani, “Ten Cheers for Interdisciplinarity: The Case for Interdisciplinary Knowledge and Research”.

but some individual traits remain. True integration and synergy only occurs when fruit is blended into a smoothie. Just as fruit can be blended into one, so can silo disciplines be blended and integrated to achieve greater, more in-depth, or more holistic understanding of complex problems. Utilizing an interdisciplinary approach to research will provide “a means of solving problems and answering questions that cannot be satisfactorily addressed using single methods or approaches”.⁴⁰

Arguments in Favour of an Interdisciplinary Approach

While “disciplines provide the depth ... interdisciplinarity provides the breadth and the integration”.⁴¹ Interdisciplinarity allows researchers to break through the established disciplinary “epistemological assumptions regarding what can be known and how, often shared ethical assumptions about what is “good,” and often shared ideological attitudes”⁴² an interdisciplinary approach allows researchers to move beyond the epistemological and ontological boundaries set by established disciplines. According to Klein and Newell, interdisciplinarity is

[...] a *process* of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession [. . .] and draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective”.⁴³

As is the case with disciplinarity, many academics have provided their perspective on the definition of interdisciplinarity. This is perhaps because there is no one way to ‘do’

⁴⁰ Klein, “*Interdisciplinarity; History, Theory, Practice*”, p. 60.

⁴¹ Repko, *Interdisciplinary Research: Process and Theory* p. 322.

⁴² Szostak, “The interdisciplinary Research Process”, p 3-4.

⁴³ Klein, Julie Thompson and William H. Newell, “Advancing Interdisciplinary Studies”. In *Handbook of the Undergraduate Curriculum: A Comprehensive Guide to Purposes, Structures, Practices, and Change*, ed. J.G. Gaff, J.L. Ratcliff & Associates (San Francisco: Jossey-Bass, 1997) pp. 393-415 and cited in Repko, *Interdisciplinary Research: Process and Theory* p. 11.

interdisciplinary research since it depends on the topic and the researcher. There is no truly right or wrong way to do interdisciplinary research. As suggested by Klein “[a]sk three scientists what interdisciplinary means, and they will likely give three answers”.⁴⁴ Salter and Hearn agree suggesting that what is covered under the umbrella of interdisciplinarity is quite large,⁴⁵ while Moran suggests interdisciplinarity is in a state of continual transformation “producing new forms of knowledge in its engagement with discrete disciplines”.⁴⁶ Jacobs and Frickel opt for a straightforward definition, de-fining interdisciplinary as “a communication and collaboration across academic disciplines”.⁴⁷

Interdisciplinarity addresses the issue of breadth and complexity because unlike disciplinary research, interdisciplinary research allows the researcher to go outside of the disciplinary lines, to examine the issue beyond the portion of reality that the discipline is interested in. Interdisciplinarity also focuses on integration, “actively and critically evaluating and creatively combining ideas and knowledge to form a new whole or cognitive advancement”.⁴⁸ This process of integration is also what moves interdisciplinary research beyond a multidisciplinary approach. Multidisciplinary research only attempts to “arrange in serial fashion the separate contributions of selected disciplines to a problem”.⁴⁹ Although multidisciplinary research borrows theoretical perspectives, methodologies

⁴⁴ Julie Thompson Klein. “A conceptual Vocabulary of Interdisciplinary Science”, p. 3-4. In Peter Weingart and Nico Stehr, eds. *Practising Interdisciplinarity*, (Toronto: University of Toronto Press, 2000).

⁴⁵ Salter, and Hearn. *Outside the lines: Issues in Interdisciplinary Research*.

⁴⁶ Moran, *Interdisciplinarity* p. 15.

⁴⁷ Jerry A. Jacobs and Scott Frickel. “Interdisciplinarity: A critical assessment.” *Annual Review of Sociology*, (2009) vol 35: p. 44.

⁴⁸ Repko, *Interdisciplinary Research: Process and Theory* p. 116.

⁴⁹ Donald G. Richards “The meaning and relevance of “synthesis” in interdisciplinary studies.” *The Journal of General Education* 45.2 (1996), p. 56 as cited in Repko, *Interdisciplinary Research: Process and Theory* p. 123.

and approaches from the disciplines, much like interdisciplinary research, multidisciplinary research leaves these pieces not cohesively assembled in an integrated way. Repko suggests “[m]ultidisciplinarity refers to the placing side by side of insights from two or more disciplines”.⁵⁰ Since a multidisciplinary approach lacks the aspect of integration of perspectives, “the relationship between the disciplines is merely one of proximity.”⁵¹ Rogers et al. states “[t]he main difference between [interdisciplinarity and multidisciplinary] lies in the mechanism of the research process and the end product”.⁵² A multidisciplinary approach limits the researcher to

[...] merely appreciating different disciplinary perspectives. But interdisciplinarity means defying disciplinary limits on what theories, concepts, and methods are appropriate to a problem and being open to alternative methods of inquiry, using different disciplinary tools, and carefully estimating the degree of usefulness of one tool versus another to shed light on the problem.⁵³

Therefore, building on this idea of crossing disciplinary boundaries, interdisciplinary research can be defined as

[...] a mode of research [...] that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice.⁵⁴

⁵⁰ Repko, *Interdisciplinary Research: Process and Theory* p. 5.

⁵¹ Moran, *Interdisciplinarity* p.16 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p.13.

⁵² Yvonne Rogers, Mike Scaife, and Antonio Rizzo. “Interdisciplinarity: An emergent or engineered process.” *Interdisciplinary collaboration: An emerging cognitive science* (2005), p. 265-286 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p.14.

⁵³ Svetlana Nikitina. “Pathways of Interdisciplinary Cognition. Cognition and Instruction”, (2005) 23(3), p. 413-414 as quoted in Repko *Interdisciplinary Research: Process and Theory* p. 15.

⁵⁴ (National Academy of Science, the National Academy of Engineering, and the Institute of Medicine. *Facilitating interdisciplinary research*.

Interdisciplinary research is innovative,⁵⁵ crosses disciplinary boundaries⁵⁶ and “is always transformative in some way, producing new forms of knowledge”.⁵⁷ Despite the critiques and challenges of interdisciplinarity presented by Meiksins⁵⁸ and Benson,⁵⁹ the benefits that can be gained by adopting an interdisciplinary approach can be much greater.

In Favour of an Interdisciplinary Research Approach

As you can see from the above discussion, there is much debate among those who favour a disciplinary approach to research and those who favour an interdisciplinary research approach. From the existing literature it appears there are many similarities that connect these debates. Interdisciplinary researchers do draw on theories, methodologies and concepts that have developed out of disciplinary perspectives. As Repko states: “all research – including interdisciplinary research – involves identifying problems, discovering source material, generating data, organizing and analyzing that information, and drawing conclusions”.⁶⁰ However, while disciplinary researchers are bound tightly by a pre-established set of theories and ways of doing research, interdisciplinarians are able to draw on, and combine or blend methods, theories and perspectives, integrating these attributes to form a holistic view of a complex social problem. When a single disciplinary approach is not adequate to fully understand all aspects of the problem at hand, interdisciplinary research borrows from other disciplines to achieve this goal. It can be perhaps argued that interdisciplinary research is growing

(Washington, DC: National Academies Press, 2005) p. 39 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p.11.

⁵⁵ Weingart, *Interdisciplinarity: The Paradoxical Discourse*, p. 29.

⁵⁶ Repko, *Interdisciplinary Research: Process and Theory*.

⁵⁷ Moran, *Interdisciplinarity* p. 15.

⁵⁸ Meiksins, “Whither Labor Studies? Lessons from Two Recent Studies”, pp. 7-20.

⁵⁹ Benson Miller, “Five Arguments Against Interdisciplinary Studies”.

⁶⁰ Repko, *Interdisciplinary Research: Process and Theory* p. 28.

in popularity and in greater demand because society is itself becoming more complex and therefore problems, whether they are social, economic, environmental or financial, are in turn more complex.⁶¹ Disciplinary views alone do not provide all the required research tools to “make sense of the social world”.⁶² A disciplinary research approach may simply be inadequate because it does not “provide us a total picture”⁶³ and therefore may overlook aspects that would allow for a more holistic understanding. It does not allow the researcher to explore the problem from multiple vantage points.

Disciplines in the Modern University

Disciplines are not, in practice, static silos of thinking and researching. In the current academic world, disciplines as subjects are continually expanding and creating new streams of study or subfields which are not fully integrated into the base discipline. Pressures from above, at an organizational or government level, and influences from below, from social justice or labour movements, have led to the evolution of the disciplines in today’s universities. This is true for traditional disciplines but has also opened spaces for the development of interdisciplinary studies.

Neoliberal pressures from university governing bodies have pushed programs to become more flexible and interdisciplinary to maximize resources. Institutionally-speaking, most interdisciplinary programs require fewer university resources to operate than a traditional discipline-based program as interdisciplinary programs generally cross-appoint faculty or are created under an existing department. In some cases, this has blurred the disciplinary boundaries. At the same

⁶¹ Klein, “A conceptual Vocabulary of Interdisciplinary Science”; Repko, *Interdisciplinary Research: Process and Theory*.

⁶² Repko, *Interdisciplinary Research: Process and Theory* p. 39.

⁶³ Ananta Kumar Giri, “The Calling of a Creative Transdisciplinarity”. *Futures*, (2002) 34(1), p. 110 as quoted in Repko, *Interdisciplinary Research: Process and Theory* p. 39.

time, with the influence of social and labour movements, new disciplines have emerged. These ‘newer’ academic disciplines have been developed out of a desire to conduct research and provide education on a subject matter and in a way that did not fit within the boundaries of the existing stringent confinements of the academic disciplines. The development of interdisciplinary programs such as Labour Studies,⁶⁴ that have developed from the ground up, conflict with the neoliberal university’s bottom down approach to interdisciplinarity and the creation of interdisciplinary departments in order to minimize the costs associated with single-discipline departments. Interdisciplinary programs such as Women’s Studies developed out of the feminist movements of the 1960s and 1970s.⁶⁵ Such programs have continued to grow to include spaces for other social movements.⁶⁶ These programs have grown into disciplines as they are validated by academic institutions, have communities of scholars, publications/journals which validate the work done by these scholars in the field and membership associations.⁶⁷

Labour studies grew out union activist education models and the efforts of the labour movement.⁶⁸ While labour

⁶⁴ Corey Dolgon and Reuben Roth “Learning to Labor: Workers Colleges and Labour Education in the U.S. and Canada.” in Corey Dolgon, Tania D. Mitchell, and Timothy K. Eatman, eds. *The Cambridge Handbook of Service Learning and Community Engagement*, (Cambridge: Cambridge University Press, 2017).

⁶⁵ Ellen Messer-Davidow, “Situating Feminist Studies” in Robert Frodeman, Julie Thompson Klein, and Roberto Carlos Dos Santos Pacheco, eds, *The Oxford handbook of interdisciplinarity*, (New York: Oxford University Press, 2017).

⁶⁶ Reuben Roth and Corey Dolgon, “Twenty-First-Century Workers’ Education in North America: The Defeat of the Left or a Revitalized Class Pedagogy?” *Labor Studies Journal* March (2016): p. 89-113.

⁶⁷ Repko, *Interdisciplinary Research: Process and Theory* p. 39.

⁶⁸ Corey Dolgon and Reuben Roth, “Labor Education and Workers’ College: Growing a Pedagogy of Hope in the United States and Canada,”

education provided practical skills training for labour activists, labour studies programs aim to provide “impartial, open and critical education about labour and society”.⁶⁹ Interdisciplinary programs such as Labour Studies generally aim to educate the whole person and resists definitions imposed from above. Labour Studies programs provide education to university age students but are also flexible to allow for credit to be given to prior work experience.⁷⁰ Labour Studies draws on numerous disciplines such as economics, sociology, psychology. However, while programs like Labour Studies draw on numerous disciplines, they are not rooted within a single discipline. In terms of academic appointments, interdisciplinary scholars may find it challenging to fit within the disciplinary mold.⁷¹ Scholars such as Meiksins argue Labour Studies is in fact a ‘discipline’ suggesting that Labour Studies is both a discipline and interdisciplinary at the same time.⁷² As a discipline Labour Studies is quite diverse in that it “is not dominated by a single, stifling orthodoxy that excludes other points of view or other approaches”.⁷³ As an interdisciplinary field, it draws on scholarship from various other academic disciplines. This includes: “history,

in Corey Dolgon, Tania D. Mitchell, and Timothy K. Eatman, eds. *The Cambridge Handbook of Service Learning and Community Engagement*. (Cambridge University Press, 2017), p. 81-92; Jeffery M. Taylor, *Union learning: Canadian labour education in the twentieth century*. (Toronto: Thompson Educational Publishing, 2001).

⁶⁹ Taylor, *Union learning: Canadian labour education in the twentieth century*, p. 7.

⁷⁰ Taylor, *Union learning: Canadian labour education in the twentieth century*.

⁷¹ Sarah Dooling, Jessica K. Graybill, and Vivek Shandas. “Doctoral Student and Early Career Academic Perspectives on Interdisciplinarity” in Robert Frodeman, Julie Thompson Klein, and Roberto Carlos Dos Santos Pacheco, eds. *The Oxford handbook of interdisciplinarity 2nd ed.* (New York: Oxford University Press, 2017).

⁷² Meiksins, “Whither Labor Studies? Lessons from Two Recent Studies”, pp. 7-20.

⁷³ Meiksins, “Whither Labor Studies? Lessons from Two Recent Studies”, p. 7.

sociology, industrial relations, management science, economics, psychology, anthropology".⁷⁴ These disciplines intersect to form 'interdisciplinary fusion'.⁷⁵ However, Meiksins also urges caution here as Labour Studies as an interdisciplinary field may be open to criticism from disciplinarians.⁷⁶ These criticisms are shared as one of the main critiques of interdisciplinarity in that interdisciplinary research "lacks a central theoretical core or consensus about the central focus of inquiry".⁷⁷ Essentially this argument assumes a disadvantage in using interdisciplinary research due to lack of a disciplinary base. However, interdisciplinary researchers in fact have knowledge and skills that span various disciplines which allows for a greater understanding of multiple theoretical perspectives.

One such theoretical perspective may include neo-Marxist theory. This theoretical perspective spans multiple disciplines including Sociology, Economics and Political Science just to name a few examples. While disciplinarians may only be able to see the strength of applying such a perspective *within* their disciplinary stream of thinking, interdisciplinarians are able to see the possibilities in drawing upon such a perspective and applying concepts from various disciplinary aspects of the theory in order to strengthen its use. Neo-Marxist theory, it can be argued, is not fettered within the constraints of a single disciplinary silo, but crosses disciplinary boundaries and is utilized for a theoretical examination from several disciplinary and interdisciplinary perspectives.

⁷⁴ Meiksins, "Whither Labor Studies? Lessons from Two Recent Studies", pp. 7-20.

⁷⁵ Wolfgang Krohn, "Interdisciplinary cases and disciplinary knowledge." in Robert Frodeman, Julie Thompson Klein, and Carl Mitcham, eds. *The Oxford handbook of interdisciplinarity*. (N.Y.: Oxford University Press, 2010).

⁷⁶ Meiksins, "Whither Labor Studies? Lessons from Two Recent Studies", pp. 7-20.

⁷⁷ Meiksins, "Whither Labor Studies? Lessons from Two Recent Studies", p. 7.

The Interdisciplinarity of Precarity in the Sudbury Mining Industry

Since the 1980s, research on the subject of precarious employment has aimed to explore the nature, scope and expansion of this growing form of employment throughout Canada and other developed countries.⁷⁸ Within the Canadian labour force, precarious employment is a complex social problem that requires an examination of the political, economic, legislative and social factors that contribute to its rise and sustainability.⁷⁹ Precarious employment includes part-time, temporary, contract or seasonal jobs with “limited social benefits and statutory entitlements, job insecurity, low job tenure, low earnings, poor working conditions and high risks of ill health”.⁸⁰ In the Ontario context, research has largely focused on the growth and effects of precarious employment within the sales and service sectors.⁸¹ While some of this research has theorized precarious employment in terms of the social and health

⁷⁸ Gerry Rodgers and Janine Rodgers, eds, *Precarious jobs in labour market regulation: the growth of atypical employment in Western Europe*. (International Labour Organisation, 1989); Richard S. Belous, “How Human Resource Systems Adjust to the Shift Toward Contingent Workers”. *Monthly Labour Review*, (1989) 112, p. 7-12.

⁷⁹ Andrew Jackson and Mark P. Thomas, *Work and Labour in Canada: Critical Issues 3rd ed.* (Toronto: Canadian Scholars, 2017); James W. Rinehart, *The Tyranny of Work: Alienation and the Labour Process*, (Toronto: Nelson Canada, 2006); Leah F. Vosko, *Temporary Work: The Gendered Rise of a Precarious Employment Relationship*. (Toronto: University of Toronto Press, 2000).

⁸⁰ Cynthia Cranford, Leah F. Vosko, and Nancy Zukewich. “The gender of precarious employment in Canada.” *Relations Industrielles/Industrial Relations* 58, no. 3 (2003): 455.

⁸¹ Vosko, *Temporary Work: The Gendered Rise of a Precarious Employment Relationship*; Vosko, *Precarious Employment: Understanding Labour Market Insecurity in Canada*; Wayne Lewchuk, Marlea Clarke & Alice de Wolff, *Working Without Commitments: The Health Effects of Precarious Employment*. (Montreal & Kingston: McGill-Queen’s University Press, 2011).

effects on an individual and community level,⁸² others have focused on gaps within the legislative regime which has failed to adequately protect the employment rights of precarious workers.⁸³ Precarious forms of employment have also taken root in Ontario's largely white and male 'good jobs' sectors⁸⁴ through the 'feminization of employment norms'.⁸⁵ While women and racialized workers have long experienced precarious employment, this form of employment has now extended into the male-dominated employment sectors of Canada's economy. This includes an expansion of precarity to traditionally well-paid jobs in the manufacturing and natural resource extraction sectors such as mining, industries not generally associated with precarious employment.

Within the Sudbury mining industry, precarious employment is a complex, multi-dimensional issue. Researching this form

⁸² Lewchuk, Clarke and de Wolf, *Working Without Commitments: The Health Effects of Precarious Employment*; Wayne Lewchuk, Michelynn Lafleche, Diane Dyson, Luin Goldring, Alan Meisner, Stephanie Procyk, Dan Rosen, John Shields, Peter Viducis, and Sam Vrankulj. 2013. *It's More Than Just Poverty: Employment Precarity and Household Well-Being* accessed 7 June 2015, <https://bit.ly/324Nntj>; PEPSO, "Getting Left Behind: Who gained and who didn't in an improving labour market", PEPSO, *McMaster University and United Way Greater Toronto*, (2018) accessed 1 March 2019

⁸³ John Grundy, Andrea M. Noack, Leah F. Vosko, Rebecca Casey, and Rebecca Hii. Enforcement of Ontario's Employment Standards Act: The impact of reforms. *Canadian Public Policy* 43 (3) (2017), p. 190-201; Mary Gellatly, John Grundy, Kiran Mirchandani, J. Adam Perry, Mark P. Thomas, and Leah F. Vosko. "'Modernising' Employment Standards? Administrative Efficiency and the Production of the Illegitimate Claimant in Ontario, Canada." Vol 22, Issue 2, (2011): 81-106; Vosko, "Rights without Remedies"

⁸⁴ Arne L. Kalleberg, *The Rise of Polarized and Precarious Employment Systems in the United States, 1970s-2000s*. (N.Y.: Russell Sage Foundation, 2011).

⁸⁵ Canford, Vosko, Zukewich, "The gender of precarious employment in Canada."; Vosko, *Temporary Work: The Gendered Rise of a Precarious Employment Relationship*; Leah F. Vosko. "Precarious Employment in Canada: Taking Stock, Taking Action" *Just Labour* (2003) vol. 3, p. 1-5.

of employment, requires scholars to examine multiple historical, economic, social, legislative and political factors contributing to the existence and expansion of precarity. As Vosko argues, understanding precarious employment requires researchers to adopt an interdisciplinary, multi-method approach.⁸⁶ The current state of employment within the Sudbury mining industry is an example of how precarious jobs are increasingly becoming the ‘norm’. Precarity is not only prevalent within the sales and service sectors, but also within the manufacturing and natural resource sectors, which traditionally stood as the bulwark of secure employment, within the Canadian economy. Once the major employment sector of the Sudbury region,⁸⁷ the industry provided full-time, unionized and stable male employment for the area.⁸⁸ However, since the 1970s a corporate push for flexibility through outsourcing, globalized ownership and foreign management strategies has sharply increased the level of precarity for workers in the Sudbury mining industry. Feminist theorists would argue that employment within this sector has been ‘feminized’ as a result of a corporate push to increase employment flexibility and reduce labour costs.

The rise of precarious employment within the Sudbury Canada mining industry parallels a decline of unionization within the industry. This decline of unionization among mine workers is significant for two reasons. First, existing

⁸⁶ Vosko, *Precarious Employment: Understanding Labour Market Insecurity in Canada*.

⁸⁷ Wallace, Carl Murray. *Sudbury: Rail town to regional capital*. Toronto: Dundurn Press Limited, 1996. David Leadbeater, *Mining Town Crisis: Globalization, Labour and Resistance in Sudbury*, (Nova Scotia: Fernwood Publishing, 2008); Oiva Saarinen, *From Meteorite Impact to Constellation City: A Historical Geography of Greater Sudbury*, (Waterloo: Wilfrid Laurier University Press, 2013); Wallace Clement, *Hardrock Mining: Industrial Relations and Technological Changes at Inco*, (Toronto: McClelland and Stewart, 1981).

⁸⁸ Author

provincial workplace legislation does not adequately protect all precarious workers.⁸⁹ Most precarious workers are also not covered by union collective agreements. In North America, unions have traditionally ensured workers' entitlement to greater than the minimum wages, working conditions and benefits.⁹⁰ Second, mining unions within the Sudbury area have historically provided social and community supports for workers and their families.⁹¹ The social consequences of union decline includes a loss of workers' shared identity, reciprocity, and a sense of community among workers.⁹² This sense of solidarity mutually reinforced a powerful force of political activism with the ability to influence political and legislative change. However, neoliberal pressures have created a climate with significant challenges for unions. These challenges make it more difficult for unions to organize workers, enforce collective agreement language, and enact workplace change through work stoppages during job actions. These challenges have been exacerbated by foreign corporate ownership and anti-union management strategies.⁹³ This

⁸⁹ Leah F. Vosko, Andrea M. Noack, Mark. P. Thomas, "How Far Does the Employment Standards Act, 2000, Extend and What Are The Gaps In Coverage? An Empirical Analysis of Archival and Statistical Data" (March 2016), <https://bit.ly/37CEvvZ>.

⁹⁰ Lewchuk, Clarke and de Wolff, *Working Without Commitments: The Health Effects of Precarious Employment*; Leah F. Vosko, "Legitimizing the triangular employment relationship: emerging international labour standards from a comparative perspective". *Comparative Labour, Law and Policy Journal*, (1997) 19, p. 43-77; Vosko, *Temporary Work: The Gendered Rise of a Precarious Employment Relationship*; Vosko, *Precarious employment: Understanding labour market insecurity in Canada*.

⁹¹ Dieter K. Buse, Peter Suschnigg, and Mercedes Steedman, eds. *Hard Lessons: The Mine Mill Union in the Canadian Labour Movement*, (Toronto: Dundurn, 1995); Leadbeater, *Mining Town Crisis: Globalization, Labour and Resistance in Sudbury*

⁹² Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community*, (New York: Simon and Schuster, 2000)

⁹³ Kaili Beck, Chris Bowes, Gary Kinsman, Mercedes Steedman, and Peter Suschnigg. "Mine Mill Fights Back: Mine Mill." *CAW Local 598 Strike*

combination of social, economic, political and legislative factors contributing to precarious employment, justifies categorizing this form of employment within the Sudbury mining industry as a complex social problem. Therefore, as argued in this paper, adopting an interdisciplinary research approach is most beneficial in this case.

Conclusion

Although perspectives on interdisciplinary research are mixed, this paper challenges the view that disciplinary research is superior to interdisciplinary research.⁹⁴ As discussed in this paper, those who favour disciplinary research argue that interdisciplinarity lacks a theoretical core rooted in disciplinary knowledge or that those who practice interdisciplinary research know a little about a lot of things. However, the growth of interdisciplinary studies within the neoliberal university demonstrates a growing interest and appreciation for this form of research. Interdisciplinary researchers understand the value of interdisciplinary research. Adopting an interdisciplinary approach allows for a more well-rounded understanding of complex social problems such as the growth of precarious employment within the Sudbury mining industry.

This paper argues that an interdisciplinary approach is needed to research and address complex social problems. An interdisciplinary approach allows the researcher to take into account several viewpoints or insights, considering various points of view that may fall outside a disciplinary

2000-2001, (Sudbury: CAW, 2001); John Peters, "Down in the Vale: Corporate Globalization, Unions on the Defensive, and the USW Local 6500 Strike in Sudbury, 2009-2010," *Labour/Le Travail*, 66 (Fall 2010), 73-105; Roberta Aguzzoli, and John Geary. "An 'Emerging Challenge': The Employment Practices of a Brazilian Multinational Company in Canada." *Human Relations* 67, no. 5 (2014): 587-609.

⁹⁴ Meiksins, "Whither Labor Studies? Lessons from Two Recent Studies", pp. 7-20

scope, thus ignoring potentially key components of the issue. The complexities of the growth and sustainability of precarious employment within the Sudbury mining industry, and the decline of unionization among local mine workers, requires adopting an interdisciplinary research approach. This approach would examine the converging political, economic, legislative and social factors associated with precarious employment within a neoliberal Canadian context.

The growth of interdisciplinary studies within neoliberal university also challenges ways of disciplinary thinking. The desire of researchers and social movement activists to move beyond disciplinary boundaries and create new ways of thinking and learning has led to the creation of many interdisciplinary programs. These programs challenge students to explore complex social problems and craft innovative and superior strategies for understanding them.

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