

2.4.3. Ethnocultural Differences in Learning

2.4.3. Ethnocultural Differences in Learning	302
Method	303
Search Strategy	303
Screening Strategy.	304
Results	304
Description of Included Articles	304
Description of Identified Factors	305
Organizational and policy factors	305
Work environment factors	306
Differences in learning.....	306
Training programs.....	307
Discussion	308
Gaps in the Literature	308
Recommendations	308
References	309

To cite: Press, M. (2017). Ethnocultural differences in learning. In Chirkov, V., Anonson, J., Anderson, J., Press, M., Gerrard, A., & Ha, C. (Eds.). *Enhancing cultures of safety and safety engagement in the Saskatchewan mining industry: A collaborative and multidisciplinary inquiry* (pp. 302-310). Saskatoon, SK Canada: International Minerals Innovation Institute.

2.4.3. Ethnocultural Differences in Learning

In this chapter, we looked at the ethnocultural factors related to education and learning. Ethnocultural factors are factors related to ethnicity and culture; these factors are related to a particular ethnic group (Oxford University Press, 2016). The question that guided our scoping review was: How do ethnocultural factors influence learning and safety engagement?

Method

A scoping search of the literature was undertaken using the following key words:

Search #1

1. Miners (miners or “resource extraction” or employees or industry or workers or “blue collar workers” or “shift workers”)
2. Ethnocultural differences (“ethnocultural differences” or ethnology or “ethnological research” or ethnicity or “ethnic groups” or “cultural competence” or “cultural diversity” or culture or “cultural safety”)
3. Learning (learning or “learning methods” or “learning environment” or “learning theory” or “problem based learning” or “lifelong learning” or “experiential learning” or teaching or “teaching methods” or “teaching materials” or “adult education”)
4. Safety engagement (“Risk taking behavior/behaviour” or “Safety behavior/behaviour” or Safety or “High risk behavior/behaviour” or “Safety engagement” or “Safety rule violation” or “Accident proneness” or “Risk perception” or “Perception of safety” or “Safety devices” or “Workplace safety” or “Work safety” or “Risk tolerance”)

Search #2

1. Miners (miners or mining or “resource extraction” or industry)
2. Ethnocultural (ethnocultural or ethnicity or “ethnic identity” or values or beliefs or culture)
3. Learning (education or learning or “adult learner” or “adult education” or “learning methods” or “learning theory”)
4. Safety engagement (“Risk taking behavior/behaviour” or “Safety behavior/behaviour” or Safety or Behav* (behaviour/behavior) or “High risk behavior/behaviour” or “Safety engagement” or “Safety rule violation” or “Accident proneness” or “Risk perception” or “Perception of safety” or “Safety devices” or “Workplace safety” or “Work safety” or “Risk tolerance” or “Industrial accidents” or “Occupational safety” or “Occupational health”)

Search Strategy. The databases searched are listed in the results. From this search, we selected articles based on the inclusion/exclusion criteria. The inclusion and exclusion criteria were kept broad in that we did not specify the types of research methods to be included or excluded in order to capture as many research articles on the topic as possible. In our search, we collected articles that were pertinent to this topic area. The broad inclusion and exclusion criteria allowed us to explore the literature in this area more completely, see Table 1.

Table 1. Ethnocultural Differences in Learning Inclusion/Exclusion criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Articles with key terms in the title or abstract • Peer reviewed • Within 5 years • English language articles 	<ul style="list-style-type: none"> • Editorials • Commentaries • Book reviews

Screening Strategy. The articles were checked for inclusion by two team members. The inclusion process was iterative in that the included/excluded articles were reviewed again for inclusion as the themes were developing. The team had final approval of the included articles. Those not applicable to the scoping review were excluded.

Results

A brief summary of each article including its location, population studied, main issue addressed, comparison group, and primary outcomes is provided in Appendix G. Table 2 is an overview of the scope of the review and articles identified.

Table 2. Ethnocultural Differences in Learning Number of articles by database

Databases selected	Articles selected for further review	Articles Selected for Review	Final article selection from article summaries
Medline	12	107	26
Nursing and Allied Health	0		
ABI Inform Complete	2		
Web of Science	5		
Scopus	3		
Embase	0		
CINAHL	3		
Academic Search Complete	12		
Engineering Village	4		
PsycInfo	25		
CBCA Business	13		
CBCA Complete	1		
Eric	12		
Proquest	15		

Description of Included Articles. Table 3 provides an overview of the types of publications, country of publication, and populations studied.

Table 3. *Ethnocultural Differences in Learning Number of articles by type, country, and population*

Type of Publications	Country of Researchers	Populations Studied
Quantitative studies <ul style="list-style-type: none"> • One meta-analysis • One systematic review • One structural equation modeling • One exploratory study • Two surveys Qualitative studies <ul style="list-style-type: none"> • Four focus group studies • One interview • Three mixed methods studies • One longitudinal case study Other <ul style="list-style-type: none"> • Two articles • One project description • One needs assessment • Two program evaluations • One literature review 	USA (13) The Netherlands (2) One from each of: <ul style="list-style-type: none"> • Finland • Pakistan • New Zealand • Sri Lanka • Australia • China • Thailand • UK • Japan 	Migrant workers in general - 6 Students in higher education - 3 Immigrant workers from <ul style="list-style-type: none"> • South Vietnam (deckhands) – 1 • Mexico (mainly construction in USA) - 7 • Thai workers (in Japan) - 2

Description of Identified Factors. In order to make it easier to describe the results of the scoping review, the articles were divided into four categories: Organization and policy factors, work environment factors, differences in learning, and training programs.

Organizational and policy factors. Organizations may find it challenging employing foreign workers. Organizational and policy factors were discussed in four articles. One study explored the problems faced by organizations. Schubert and Dijkstra (2009) identified five problems encountered by companies in the Netherlands working with foreign contractors: communication, level of education, cultural differences, specific employment situations, and lack of cooperation between company and contractors. Schubert and Dijkstra found half of the company representatives interviewed perceived working with foreign contractors increased the chance of accidents. There is a need for improved safety of foreign workers. In a review of health and safety initiatives related to migrant workers in the agricultural sector in the United States; Arcury, Estrada, and Quandt (2010) reported a need for: better reporting of injuries, development of health and safety programs for agricultural workers, comprehensive training to include short stay migrant workers, training materials in a variety of formats and languages, and policy and regulations requiring health and safety training of agricultural workers.

Policy may be needed to bridge some of the safety gaps. Two studies recommend strategies for policy-makers. In an ethnographic study of migrant curtain wall installers on a large project in England; Tutt, Pink, Dainty, and Gibb (2013) found tacit skill and local knowledge was communicated within the group outside of institutional communication. The researcher suggested intersections be developed between institutional and local knowledge in order to ensure safe working on construction sites. In a focus group study of Thai factory workers, Tantranont et al. (2009) described factors influencing hearing protection use including intrapersonal, interpersonal, and organizational. They concluded change strategies should encompass all three levels in order to promote workers use of hearing protection devices.

Work environment factors. Foreign workers face challenges as well. Three articles were related to work environment factors. Foldy, Rivard, and Buckley (2009) discussed the power differentials that may be present in a racially-diverse work and learning group. They addressed the potential power dynamics by suggesting the following: provide identify safety, use an integration and learning perspective, and follow high-learning frames. The integration and learning perspective states “varied cultural backgrounds offer fertile material for thinking about how we organize and carry out the breadth and depth of the work we do together” (Foldy et al., p. 30). High learning frames “strengthen the relationship between psychological safety and learning behaviors in culturally diverse groups” (p. 32) by legitimizing discussion of cultural differences and power asymmetries (Foldy et al., 2009).

Power differentials may affect foreign-worker safety. In a qualitative study with union and non-union Hispanic construction workers, Roelofs, Sprague-Martinez, Brunette, and Azaroff (2011) found the workers reported intimidation, pressure, and competition for jobs resulting in safety concerns over language or cultural factors. The study resulted in an intervention trial for contractors which included building respect and facilitating participation of Hispanic workers in a safety program. Shrestha and Menzel (2014) completed telephone interviews on fall prevention trainees, and they found only 2% practiced assertiveness at work and only 28% of Hispanic workers thought assertiveness training would be useful. The researchers suggested interventions to improve safety climate instead of assertiveness training.

Differences in learning. There is substantial support for ethno-cultural backgrounds influencing the way an individual learns. Eight articles were related to ethnocultural differences in learning. Ethno-culture influences thought, social participation, communication, cognition, and interaction with technology, and therefore, learning in multicultural and intergenerational classrooms or online requires investigation and planning for the multicultural population (Ke & Chavez, 2013). In a study of the impact of ethnicity on learning, Bokhari and Panhwar (2014) found ethnic backgrounds and epistemological beliefs played a significant role in learning, and various cultural dimensions mold an individual’s personality which influences their learning style. In a cross-cultural comparison of learning in higher education, Marambe, Vermunt, and Boshuizen (2012) found many differences in learning styles amongst the countries studied, but they also identified some universal patterns and some specific to the culture. They suggested these patterns may change over time with adequate support. In a comparison of learning styles between Japanese and Thai employees, Yamazaki and Attrapreyangkul (2014) found employees of different cultures exhibited different learning styles. The researchers suggested obtaining broader information about the learning styles prevalent in a country. This could impact the types of learning materials best suited to a particular country of origin.

The individual must be considered as well as their ethnicity. In a review of the literature regarding the effects of culture on learning, Young (2014) concluded culture makes a difference when selecting instructional strategies, however it is better to derive strategies from the learner rather than applying them to the learner. Thus, although culture may be an important consideration, all learners are different and teaching materials should take into account their individuality. Zhong (2015) found a change in beliefs and approaches to learning in two migrant Chinese learners over a period of time. The

author found as the learners were exposed to new learning approaches, their strategies evolved. In this study, even though both learners improved, one of the learners became more proficient than the other; and Zhong attributed this to the strong relationship between cultural beliefs and learning strategies.

There are suggestions of how to improve training of foreign works. In a focus group study of Vietnamese fishermen who immigrated to the USA, Carruth et al. (2010) reported: occupational health and safety training should occur in a variety of formats especially hands-on; should be “periodic, current, practical, convenient, and taught in the primary language” (p. 375) of the learner; captains should be targeted first; and, individuals should obtain a certificate of completion. They emphasized the importance of considering ethno cultural factors when designing learning materials. Ringer, Volkov, and Bridson (2014) presented the principles of C.U.L.T.U.R.E. as an educational tool. These principles include: clear aims and objectives, understanding of cultural diversity in assessment, learning environment fostering inclusion, task diversity, unified learning practices, reflective assessments, and equitable assessments (Ringer et al., 2014). The authors suggested these principles ensure an inclusive environment which meets the culturally diverse needs of the students.

Training programs. There were many examples of training programs in the literature. Seven articles were related to training programs. In a qualitative interview study of 103 Finnish ethnic minority employees, Abdirizak and Leponiemi (2009) reported use of induction training and a work familiarization program provided a benefit to the company with challenges related to lack of resources and time during the induction process. They suggested more evaluation, information, and innovations and training for the trainers is needed. Sokas, Jorgensen, Nickles, Gao, and Gittleman (2009) found both U.S.-born and Mexican-born construction workers showed improvement in knowledge and attitude towards safety three months after a one-hour safety class. Williams, Ochsner, Marshall, Kimmel, and Martino (2010) found Hispanic workers who completed a safety training session were more likely to demonstrate personal initiative in seeking PPE or asking about a hazardous situation after the intervention.

The type of instruction may influence learning as well. Forst et al. (2013) reported on implementation of an occupational safety training course for Hispanic workers in the construction industry which utilized a community-based participatory research approach. They found improved learning in knowledge and hazard identification, self-efficacy, and sustained safety activities. They suggested more research on the use of pictures and vignettes in the training of foreign workers. Sun, Yang, and Chen (2013) reported on a traffic safety program for migrant workers which included games, real stories, pictures with text, and quizzes. They found 80% of participants had good traffic safety knowledge and 90% found the training satisfactory. The researchers concluded case studies of true stories and picture books enhanced the training session.

The language of the instruction may result in dissimilar learning. Liebman, Juarez-Carrillo, Reyes, and Keifer (2014) described a safety training program for Hispanic immigrants in the dairy industry. They found huge knowledge gaps and fear of job loss impeding the learning process. They suggested language and culturally appropriate training methods are essential for this population of workers. In a program evaluation of professional training for farm labourers, Morera et al. (2014) found both Spanish and English training resulted in improved scores on knowledge tests, however trainings in

English resulted in significantly higher post-test scores. The researchers concluded the knowledge gains were due to variations in content and delivery between the two languages due to multicultural variations in adaptive teaching.

Training can empower foreign workers. Ochsner et al. (2012) reported on a project to improve health and safety of immigrant workers. The project identified potential immigrant workers and provided a series of 10 occupational health and safety classes, quarterly meetings, workers council, safety audits, and an ongoing relationship with the OSHA. By going beyond classroom teaching to participation in health and safety, Ochsner et al. found these safety liaisons have prompted changes at worksites, filed complaints with the OSHA, and developed local worker councils.

Discussion

Organizations face challenges when employing foreign workers, however foreign workers also face challenges in the workplace. A lack of understanding of the language and the culture puts them at a disadvantage, as well as putting them at risk for injury. There is a need for policy-development related to training of foreign workers.

Communication is a concern. Organizational communication may not be understood by the foreign worker, and groups of foreign workers may develop their own communication groups which are not understood by the parent company. As well, language of instruction may affect learning. If instruction is given in the foreign language, nuances of the safety culture may be missed. However, instruction in the organizational language may make no sense to the foreign worker.

Learning styles is also a concern. Researchers studying learning styles have indicated a difference between countries. Although some authors suggested learning styles can change over time, safety training should occur early, and should take into account the learning style of the individual's home country as well as taking into account individual differences in learning.

Empowering workers may make a difference in their safety. Some of the studies have indicated power differentials between foreign workers and other workers. Training can help to empower foreign workers to advocate for their safety and the safety of others.

Gaps in the Literature. The literature indicated lack of policy, communication, learning styles, and empowerment as key issues in the development of foreign workers. Each of these factors should be looked at in more depth.

Recommendation. Ethno-culturally-appropriate safety training has huge impacts on safety engagement of foreign workers. From the scoping review, the following are recommendations for the mining industry:

- Organizations need to develop policy specific to training of foreign workers. This safety training should consider country of birth, language of worker, learning style, and empowerment of the worker.

References

- Abdirizak, M., & Leponiemi, J. (2009). Immigrant workers' induction training in Finland: case Petmo project. *Management of Environmental Quality*, 20(3), 278-289. doi:<http://dx.doi.org/10.1108/14777830910950676>.
- Arcury, T. A., Estrada, J. M., & Quandt, S. A. (2010). Overcoming Language and Literacy Barriers in Safety and Health Training of Agricultural Workers. *Journal of Agromedicine*, 15(3), 236-248. doi:10.1080/1059924X.2010.486958.
- Bokhari, S. R. A., & Panhwar, I. A. (2014). Understanding Online Cultural Learning Styles and Academic Performance of Management Students in an Ethnic Context. *Cross-Cultural Online Learning in Higher Education and Corporate Training*, 149.
- Carruth, A. K., Levin, J. L., Gilmore, K., Bui, T., Gallardo, G., Evert, W., & Sealey, L. (2010). Cultural Influences on Safety and Health Education Among Vietnamese Fishermen. *Journal of Agromedicine*, 15(4), 375-385. doi:10.1080/1059924X.2010.513647.
- Foldy, E. G., Rivard, P., & Buckley, T. R. (2009). Power, safety, and learning in racially diverse groups. *Academy of Management Learning & Education*, 8(1), 25-41.
- Forst, L., Ahonen, E., Zanoni, J., Holloway-Beth, A., Oschner, M., Kimmel, L., Sokas, R. (2013). More than training: Community-based participatory research to reduce injuries among hispanic construction workers. *American Journal of Industrial Medicine*, 56(8), 827-837. doi: 10.1002/ajim.22187/abstract.
- Ke, F., & Chavez, A. F. (2013). Cultural Constructs in Teaching and Learning. In *Web-Based Teaching and Learning across Culture and Age* (pp. 93-114). Springer New York.
- Liebman, A. K., Juarez-Carrillo, P., Reyes, I. A. C., & Keifer, M. C. (2014). A Model Health and Safety Intervention for Hispanic Immigrants Working in the Dairy Industry. *Journal of Agromedicine*, 19(2), 78-82. doi:10.1080/1059924x.2014.888025.
- Marambe, K. N., Vermunt, J. D., & Boshuizen, H. P. (2012). A cross-cultural comparison of student learning patterns in higher education. *Higher Education*, 64(3), 299-316.
- Morera, M. C., Monaghan, P. F., Tovar-Aguilar, J. A., Galindo-Gonzalez, S., Roka, F. M., & Asuaje, C. (2014). Improving health and safety conditions in agriculture through professional training of Florida farm labor supervisors: preliminary findings of a program evaluation. *Journal of Agromedicine*, 19(2), 226-227.
- Ochsner, M., Marshall, E. G., Martino, C., Pabelón, M. C., Kimmel, L., & Rostran, D. (2012). Beyond the classroom: a case study of immigrant safety liaisons in residential construction. *New Solutions: A Journal Of Environmental And Occupational Health Policy: NS*, 22(3), 365-386. doi:10.2190/NS.22.3.h.
- Oxford University Press. 2016. Ethnocultural. Retrieved from <http://www.oxforddictionaries.com/definition/english/ethnocultural>
- Ringer, A., Volkov, M., & Bridson, K. (2014). CULTURE: marketing education in the age of cultural diversity. *Education+ Training*, 56(6), 503-520.
- Roelofs, C., Sprague-Martinez, L., Brunette, M., & Azaroff, L. (2011). A qualitative investigation of Hispanic construction worker perspectives on factors impacting worksite safety and risk. *Environmental Health: A Global Access Science Source*, 10, 84-84. doi:10.1186/1476-069X-10-84.
- Schubert, U., & Dijkstra, J. J. (2009). Working safely with foreign contractors and personnel. *Safety Science*, 47(6), 786-793. doi:10.1016/j.ssci.2008.02.001.
- Shrestha, P. P., & Menzel, N. N. (2014). Hispanic construction workers and assertiveness training. *Work-a Journal of Prevention Assessment & Rehabilitation*, 49(3), 517-522. doi:10.3233/WOR-131728.
- Sokas, R. K., Jorgensen, E., Nickels, L., Gao, W., & Gittleman, J. L. (2009). An Intervention Effectiveness Study of Hazard Awareness Training in the Construction Building Trades. *Public Health Reports*, 124, 161-168.
- Sun, H. Y., Yang, D. Y., & Chen, C. (2013). Research and Application on Traffic Safety Education to Migrant Workers. In L. Zhang, H. Wei, Z. Li, Y. Zhang, & M. Li (Eds.), *Intelligent and Integrated Sustainable Multimodal Transportation Systems Proceedings from the 13th Cota International Conference of Transportation Professionals* (Vol. 96, pp. 418-424).
- Tantranont, K., Srisuphan, W., Kaewthummanukul, T., Suthakorn, W., Jormsri, P., & Salazar, M. K. (2009). Factors affecting Thai workers' use of hearing protection. *Aaohn Journal*, 57(11), 455-463. doi:10.3928/08910162-20091019-01.
- Tutt, D., Pink, S., Dainty, A. R. J., & Gibb, A. (2013). 'In the air' and below the horizon: migrant workers in UK construction and the practice-based nature of learning and communicating OHS. *Construction Management and Economics*, 31(6), 515.

- Williams, Q., Ochsner, M., Marshall, E., Kimmel, L., & Martino, C. (2010). The impact of a peer-led participatory health and safety training program for Latino day laborers in construction. *Journal of Safety Research*, 41(3), 253-261.
- Yamazaki, Y., & Attrapreyangkul, T. (2014). A Comprehensive Approach to Understand Learning Styles across Countries: A Comparison between the Japanese and Thai Employees of Japanese MNCs. *The Palgrave Handbook of Experiential Learning in International Business*, 91.
- Young, P. A. (2014). The presence of culture in learning. In J. M. Spector, M. D. Merrill, J. Elen, and M. J. Bisho, *Handbook of research on educational communications and technology* (4th ed., pp. 349-361). New York, NY: Springer.
- Zhong, Q. Y. (2015). Changes in two migrant learners' beliefs, learning strategy use and language achievements in a New Zealand context. *System*, 53, 107-118. doi:10.1016/j.system.2015.07.001.