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Original article

Development and validation of the organisational cooperation questionnaire

Développement et validation du questionnaire de coopération organisationnelle

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ABSTRACT

Introduction. – Cooperation is an essential framework for the functioning of organisations and society. The limitations of current measures of organisational cooperation led us to construct the measure herein presented.

Objective. – The paper aims to describe the development and psychometric validation of an organisational cooperation measure based on how the cooperating members view and experience the cooperation process.

Method. – Based on relevant literature, the items were built and submitted to a panel of experts and fine-tuning procedures. The instrument (31 items) was applied to 1354 employees in local authorities. Exploratory and confirmatory factor analysis were performed (2 sub-samples), as well as validation procedures through Pearson correlation with the Knowledge Management Questionnaire.

Results. – Results showed good statistical indicators of a 22-items three-factor structure: principles of cooperative relationship; formal regulation of cooperation; and cooperation focused on organisational mission. The factors are interpreted theoretically and present high internal consistency. The validation process suggests the suitability of the instrument for the population studied.

Conclusion. – This instrument can be used as a starting point for organisational intervention when cooperation-intensive processes are relevant. It can be useful to characterize the existing cooperation in organisations and to foster cooperation in organisations, especially in the intended dimensions. Future studies can apply the instrument to various sectors of activity. It will also be worth studying cooperation in its relationship with other organisational variables, namely those concerning cooperation-intensive processes.

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RÉSUMÉ

Mots clés :

Questionnaire de coopération organisationnelle (ORCOQ)

Coopération organisationnelle

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Mission organisationnelle

Introduction. – La coopération est un cadre essentiel pour le fonctionnement des organisations et de la société. Les limites des mesures actuelles de coopération organisationnelle nous ont conduit à la construction de la mesure présentée ici.

Objectif. – Cette recherche vise à décrire la construction et la validation psychométrique d'une mesure de coopération organisationnelle basée sur la façon dont les membres perçoivent et expérimentent le processus de coopération.

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- Axelrod, R. (1997). *The complexity of cooperation: Agent-based models of competition and collaboration*. New Jersey: Princeton University Press.
- Beck, N., & Kieser, A. (2003). The complexity of rule systems, experience and organizational learning. *Organization Studies*, 24, 793–814. <http://dx.doi.org/10.1177/0170840603024005006>
- Beekman, G., Cheung, S. L., & Leveley, I. (2017). The effect of conflict history on cooperation within and between groups: Evidence from a laboratory experiment. *Journal of Economic Psychology*, 63, 168–183. <http://dx.doi.org/10.1016/j.joep.2017.02.004>
- Beersma, B., Hollenbeck, J., Humphrey, S., Moon, H., Conlon, D., & Ilgen, D. (2003). Cooperation, competition and team performance: Toward a contingency approach. *Academy of Management Journal*, 46(5), 572–590. <http://dx.doi.org/10.5465/30040650>
- Bentler, P. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238–246. <http://dx.doi.org/10.1037/0033-2909.107.2.238>
- Bijlsma-Frankema, K., & Costa, A. (2005). Understanding the trust-control nexus. *International Sociology*, 20(3), 259–282. <http://dx.doi.org/10.1177/0268580905055477>
- Boros, S., Meslec, N., Curseu, P. L., & Emmons, W. (2010). Struggles for cooperation: Conflict resolution strategies in multicultural groups. *Journal of Managerial Psychology*, 25(5), 539–554. <http://dx.doi.org/10.1108/02683941011048418>
- Brito, E., & Cardoso, L. (2009). Knowledge management and total quality management. In K. A. Fanti (Ed.), *Applying psychological research to understand and promote the well-being of clinical and non-clinical populations* (pp. 161–174). Athens: Atiner Publications.
- Brito, E., Cardoso, L., & Ramalho, C. (2010). Knowledge management in local government sector: The role of the quality certification. In S. Rodrigues (Ed.), *Proceedings of the 2nd European Conference on Intellectual Capital* (pp. 127–136). United Kingdom: Academic Publishing Limited.
- Brito, E., & Cardoso, L. (2012). *Knowledge management processes in the Portuguese local government sector*. pp. 135–144. (Proceedings of the 13th European Conference on Knowledge Management, 6–7 September, Cartagena, Spain. ISBN: 978-1-908272-63-8).
- Brito, E., Pais, L., dos Santos, N. R., & Figueiredo, C. (2020). Knowledge management, customer satisfaction and organizational image discriminating certified from non-certified (ISO 9001) municipalities. *International Journal of Quality & Reliability Management*, 37(3), 451–469. <http://dx.doi.org/10.1108/IJQRM-10-2018-0281>
- Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: The Guilford Press.
- Burns, T., & Flam, H. (1987). *The shaping of social organization: Social rule system theory with applications*. London: Sage.
- Cabrera, A., & Cabrera, E. F. (2002). Knowledge-sharing dilemmas. *Organization Studies*, 23(5), 687–710. <http://dx.doi.org/10.1177/0170840602235001>
- Caldwell, D., & O'Reilly, C. (2003). The determinants of team-based innovation in organizations: The role of social influence. *Small Group Research*, 34, 497–517. <http://dx.doi.org/10.1177/1046496403254395>
- Campion, M., Medsker, G., & Higgs, A. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, 46, 823–850. <http://dx.doi.org/10.1111/j.1744-6570.1993.tb01571.x>
- Cattell, R. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1, 421–483. http://dx.doi.org/10.1207/s15327906mbr0102_10
- Chang, H. I., & Peisakhin, L. (2019). Building cooperation among groups in conflict: An experiment on intersectoral cooperation in Lebanon. *American Journal of Political Science*, 63(1), 146–162. <http://dx.doi.org/10.1111/ajps.12397>
- Chen, X.-P., Xie, X., & Chang, S. (2011). Cooperative and competitive orientation among Chinese people: Scale development and validation. *Management and Organization Review*, 7(2), 353–379. <http://dx.doi.org/10.1111/j.1740-8784.2011.00215.x>
- Cicero, L., Bonaiuto, M., Pierro, A., & Van Knippenberg, D. (2008). Employees' work effort as a function of leader group prototypicality: The moderating role of team identification. *European Review of Applied Psychology*, 58(2), 117–124. <http://dx.doi.org/10.1016/j.erap.2007.01.001>
- Clifton, J. (2012). A discursive approach to leadership: Doing assessments and managing organizational meanings. *Journal of Business Communication*, 49(2), 148–168. <http://dx.doi.org/10.1177/0021943612437762>
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). New Jersey: Lawrence Erlbaum Associates.
- Colman, A. M. (2003). Cooperation, psychological game theory and limitations of rationality in social interaction. *Behavioral and Brain Sciences*, 26, 139–198. <http://dx.doi.org/10.1017/S0140525X03000050>
- Costello, A., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation*, 10(7), 1–9. <http://dx.doi.org/10.7275/jyj1-4868>
- Cremer, D., & Vugt, M. (1998). Collective identity and cooperation in a public goods dilemma: A matter of trust or self-efficacy? *Current Research in Social Psychology*, 3, 1–11.
- Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management Science*, 50(3), 352–364. <http://dx.doi.org/10.1287/mnsc.1030.0134>
- Dalton, D. R., & Cosier, R. A. (1989). Development and psychometric properties of the Decision Conflict and Cooperation Questionnaire (DCCQ). *Educational and Psychological Measurement*, 49(3), 697–700. <http://dx.doi.org/10.1177/001316448904900324>
- DeHart-Davis, L. (2007). The unbureaucratic personality. *Public Administration Review*, 67(5), 892–903. <http://dx.doi.org/10.1111/j.1540-6210.2007.00776.x>
- DeHart-Davis, L. (2008). Green tape: A theory of effective organizational rules. *Journal of Public Administration Research and Theory*, 19, 361–384. <http://dx.doi.org/10.1093/jopart/mui004>
- DeHart-Davis, L., & Pandey, S. (2005). Red tape and public employees: Does perceived rule dysfunction alienate managers? *Journal of Public Administration Research and Theory*, 15(1), 133–148. <http://dx.doi.org/10.1093/jopart/mui007>
- de Reuver, R., & van Woerkom, M. (2010). Can conflict management be an antidote to subordinate absenteeism? *Journal of Managerial Psychology*, 25(5), 479–494. <http://dx.doi.org/10.1108/02683941011048382>
- Deschamps, J.-C., & Devos, T. (1998). Regarding the relationship between social identity and personal identity. In J. F. Morales, D. Pérez, J. C. Deschamps, & S. Worcheil (Eds.), *Social identity: International perspective* (pp. 1–12). London: Sage.
- Deutsch, M. (2001). Cooperation and conflict resolution: Implications for consulting psychology. *Consulting Psychology Journal: Practice and Research*, 53(2), 76–81. <http://dx.doi.org/10.1037/1061-4087.53.2.76>
- DeVellis, R. (2012). *Scale development: Theory and applications* (3rd ed.). Thousand Oaks, CA: Sage.
- dos Santos, N. R. (2001). *Identity and cooperation: Expanding the self-categorization theory*. (Poster presented at the International Society for Theoretical Psychology Conference 2001, June, Calgary, Canada).
- dos Santos, N. R. (2009). Rule obesity: Some reflections on the undermining effect of rules and laws on individuals, organizations and societies. In C. Hamilton, O. Neumaier, G. Schweiger, & C. Sedmak (Eds.), *Facing tragedies* (pp. 139–146). Wien-Berlin-Münster: LIT Verlag.
- Dovidio, J., Gaertner, S., & Esses, V. (2008). Cooperation, common identity, and intergroup contact. In B. Sullivan, M. Snyder, & J. Sullivan (Eds.), *Cooperation: The political psychology of effective human interaction* (pp. 141–159). Oxford: Blackwell Publishing.
- Drziewiecki, M., & Roczniewska, M. (2018). The relationship between perceived leadership styles and organisational constraints: An empirical study in Goleman's typology. *European Review of Applied Psychology*, 68(4–5), 161–169. <http://dx.doi.org/10.1016/j.erap.2018.08.002>
- Earley, P., & Gibson, C. (1998). Taking stock in our progress on individualism-collectivism: 100 years of solidarity and community. *Journal of Management*, 24(3), 265–304. <http://dx.doi.org/10.1177/014920639802400302>
- Faerman, S. R., McCaffrey, D. P., & van Slyke, D. M. (2001). Understanding interorganizational cooperation: Public-private collaboration in regulating financial market innovation. *Organization Science*, 12(3), 372–388. <http://dx.doi.org/10.1287/orsc.12.3.372.10099>
- Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. New York: Free Press.
- Gilson, L., & Shalley, C. (2004). A little creativity goes a long way: An examination of teams' engagement in creative processes. *Journal of Management*, 30(4), 453–470. <http://dx.doi.org/10.1016/j.jm.2003.07.001>
- Graf, A., Koeszegi, S. T., & Pesendorfer, E.-M. (2010). Electronic negotiations in intercultural interfirm relationships. *Journal of Managerial Psychology*, 25(5), 495–551. <http://dx.doi.org/10.1108/02683941011048391>
- Grimalda, G., Buchan, N., & Brewer, M. (2018). Social identity mediates the positive effect of globalization on individual cooperation: Results from international experiments. *PLoS ONE*, 13(12), 1–25. <http://dx.doi.org/10.1371/journal.pone.0206819>
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis* (6th ed.). New Jersey: Pearson Prentice Hall.
- Howard, B. (1996). A meta-analysis of scripted cooperative learning. Paper presented at the Annual Meeting of the Eastern Educational Research Association, pp. 21–24. Boston, MA (Available from: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib,uid&db=eric&AN=ED404353&lang=pt&ptw=&site=eds-live&scope=site>)
- Hu, L., & Bentler, P. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- Irving, J. A., & Klenke, K. (2004). Telos, chronos, and hermeneia: The role of metanarrative in leadership effectiveness through the production of meaning. *International Journal of Qualitative Methods*, 3(3), 28.
- Janssen, O., Van de Vliert, E., & Veenstra, C. (1999). How task and person conflict shape the role of positive interdependence in management teams. *Journal of Management*, 2, 117–142. [http://dx.doi.org/10.1016/S0149-2063\(99\)80006-3](http://dx.doi.org/10.1016/S0149-2063(99)80006-3)
- Johnson, D. W., & Johnson, R. T. (2005). New developments in social interdependence theory. *Genetic, Social and General Psychology Monographs*, 131(4), 285–358. <http://dx.doi.org/10.3200/MONO.131.4.285-358>
- Katz-Navon, Y., & Erez, M. (2005). When collective- and self-efficacy affect team performance: The role of task interdependence. *Small Group Research*, 36, 437–465. <http://dx.doi.org/10.1177/1046496405275233>
- Kelman, H. (1972). The rights of the subject in social research: An analysis in terms of relative power and legitimacy. *American Psychologist*, 27, 989–1016. <http://dx.doi.org/10.1037/h0033995>
- Klein, C. (2013). Social capital or social cohesion: What matters for subjective well-being? *Social Indicators Research*, 110(3), 891–911. <http://dx.doi.org/10.1007/s11205-011-9963-x>
- Kline, R. (2005). *Principals and practice of structural equation modelling* (2nd ed.). New York: Guilford Press.
- Kyndt, E., Raes, E., Lismont, B., Timmers, F., Cascallar, E., & Dochy, F. (2013). A meta-analysis of the effects of face-to-face cooperative learning. Do recent

- studies falsify or verify earlier findings? *Educational Research Review*, 10, 133–149. <http://dx.doi.org/10.1016/j.edurev.2013.02.002>
- Ladbury, J. L., & Hinsz, V. B. (2018). How the distribution of member expectations influences cooperation and competition in groups: A social relations model analysis of social dilemmas. *Personality and Social Psychology Bulletin*, 44(10), 1502–1518. <http://dx.doi.org/10.1177/0146167218771322>
- Lewis, K. (2003). Measuring transactive memory systems in the field: Scale development and validation. *Journal of Applied Psychology*, 88(4), 587–604. <http://dx.doi.org/10.1037/0021-9010.88.4.587>
- Marzucco, L., Marique, G., Stinglhamber, F., De Roeck, K., & Hansez, I. (2014). Justice and employee attitudes during organizational change: The mediating role of overall justice. *European Review of Applied Psychology*, 64(6), 289–298. <http://dx.doi.org/10.1016/j.erap.2014.08.004>
- Mathieu, J., Maynard, M., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997–2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34, 410–476. <http://dx.doi.org/10.1177/0149206308316061>
- Michinov, E. (2007). Validation de l'échelle de mémoire transactive en langue française et adaptation au contexte académique [Validation of a French version of the Transactive Memory Scale and its adaptation to an academic context]. *Revue Européenne de Psychologie Appliquée*, 57, 59–67. <http://dx.doi.org/10.1016/j.erap.2006.03.001> (European Review of Applied Psychology)
- Morrison, B. (1999). *Interdependence, the group, and social cooperation: A new look at an old problem*. In M. Foddy, M. Smithson, S. Schneider, & M. Hogg (Eds.), *Resolving social dilemmas: Dynamic, structural, and intergroup aspects* (pp. 295–308). Philadelphia: Psychology Press.
- Nam, C., & Zellner, R. (2011). The relative effects of positive interdependence and group processing on student achievement and attitude in online cooperative learning. *Computers and Education*, 56(3), 680–688. <http://dx.doi.org/10.1016/j.compedu.2010.10.010>
- Neber, H., Finsterwald, M., & Urban, N. (2001). Cooperative learning with gifted and high-achieving students: A review and meta-analyses of 12 studies. *High Ability Studies*, 12(2), 199–214. <http://dx.doi.org/10.1080/13598130120084339>
- Netemeyer, R., Bearden, W., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Thousand Oaks: Sage Publications.
- Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Pais, L. (2014). Gestão do conhecimento. In M. Siqueira (Ed.), *Medidas do comportamento organizacional. Ferramentas de diagnóstico e de gestão* (pp. 193–208). Porto Alegre: Artmed.
- Pais, L., & dos Santos, N. R. (2015). Knowledge-sharing, cooperation and personal development. In K. Kraiger, J. Passmore, N. R. dos Santos, & S. Malvezzi (Eds.), *The Wiley-Blackwell Handbook of the psychology of training, development, and performance improvement* (pp. 278–302). UK, Chichester, West Sussex: Wiley Blackwell.
- Ravenscroft, S. (1997). In support of cooperative learning. *Issues in Accounting Education*, 12(1), 187–190.
- Rosenbaum, M., Moore, D., Cotton, J., Cook, M., Hieser, R., Shovar, M., & Gray, M. (1980). Group productivity and process: Pure and mixed reward structures and task interdependence. *Journal of Personality and Social Psychology*, 39, 626–642. <http://dx.doi.org/10.1037/0022-3514.39.4.626>
- Schalk, R., & Curseu, P. L. (2010). Cooperation in organizations. *Journal of Managerial Psychology*, 25(5), 453–459. <http://dx.doi.org/10.1108/02683941011048364>
- Schermerhorn, J. (1975). Determinants of interorganizational cooperation. *The Academy of Management Journal*, 18(4), 846–856. <http://dx.doi.org/10.2307/255382>
- Smircich, L., & Morgan, G. (1982). Leadership: The management of meaning. *The Journal of Applied Behavioral Science*, 18(3), 257–273. <http://dx.doi.org/10.1177/002188638201800303>
- Solansky, S. (2011). Team identification: A determining factor of performance. *Journal of Managerial Psychology*, 26(3), 247–258. <http://dx.doi.org/10.1108/02683941111112677>
- Stone, D. L. (2010). Creating knowledge that makes important contribution to society. *Journal of Managerial Psychology*, 25(3), 192–200. <http://dx.doi.org/10.1108/02683941011023703>
- Stueber, K. (2005). How to think about rules and rule following. *Philosophy of the Social Sciences*, 35, 307–323. <http://dx.doi.org/10.1177/0048393105277988>
- Tabachnick, B., & Fidell, L. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson.
- Tsai, W. (2002). Social structure of cooptition within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing. *Organization Science*, 13(2), 179–190. <http://dx.doi.org/10.1287/orsc.13.2.179.536>
- Turner, J., Hogg, M., Oakes, P., Reicher, S., & Wetherell, M. (1987). *Rediscovering social group: A self-categorization theory*. Blackwell: Oxford.
- Tyler, T. (2002). Leadership and cooperation in groups. *American Behavioral Scientist*, 45, 769–782. <http://dx.doi.org/10.1177/0002764202045005003>
- Tyler, T., & Blader, S. (2000). *Cooperation in groups: Procedural justice, social identity and behavioral engagement*. Philadelphia: Psychology Press.
- van de Vijver, F. J. R., & Tanzer, N. K. (2004). Bias and equivalence in cross-cultural assessment: An overview. *European Review of Applied Psychology*, 54(2), 119–135. <http://dx.doi.org/10.1016/j.erap.2003.12.004>
- van der Vegt, G., & Van de Vliert, E. (2005). Effects of perceived skill dissimilarity and task interdependence on helping in work teams. *Journal of Management*, 31, 73–89. <http://dx.doi.org/10.1177/0149206304271382>
- Wageman, R. (1995). Interdependence and group effectiveness. *Administrative Science Quarterly*, 40, 145–180. <http://dx.doi.org/10.2307/2393703>
- Wageman, R. (2001). The meaning of interdependence. In M. Turner (Ed.), *Groups at work: Theory and research* (pp. 197–217). London: Lawrence Erlbaum Associates Publishers.
- Wagner, J. (1995). Studies of Individualism-collectivism: Effects on cooperation in groups. *Academy of Management Journal*, 35, 152–172. <http://dx.doi.org/10.2307/256731>
- Webb, J. (2016). How does cooperation and competition foster or inhibit creativity and innovation? *Journal of Leadership Studies*, 10(1), 62–63. <http://dx.doi.org/10.1002/jls.21448>
- Young, H. (2003). The power of norms. In P. Hammerstein (Ed.), *Genetic and cultural evolution of cooperation* (pp. 389–399). Cambridge, MA: MIT Press.
- Zhang, Z., & Jia, M. (2010). Procedural fairness and cooperation in public-private partnerships in China. *Journal of Managerial Psychology*, 25(5), 513–538. <http://dx.doi.org/10.1108/02683941011048409>