

4 V S G B D F 5 P Q P H S B Q I J D B M \$ I B O H F T

9D QGHZDOOH 6

'HS DUWPHQW RI 3URVWKRG RQWL FV 8QLYHUVLW\ RI &LQFLQQDWL &LQFLQQDWL 2KLR 86\$

&RUUHVSQRQGLQDQ&WZRQOH 6 'HSDUWPHQW RI 3URVWKGRGRQWLKV 8QLYHUVLW\ RI &LQFLQDIDWY DQLQHIZC
FWU#XV DI PLO

5HFHLYHG GDWH)HE\$IRIDHUSWHG GDWH 0DUFK 3XEOLVKHG GDWH \$SULO
&RS\ULJKW 9DQGHZDOOH 6 7KLV LV DQ RSHQ DFFFHVV DUWLFOH GLVWULEXWHG XQGHU WKH WHUPV RI W
XVH GLVWULEXWLRQ DQG UHSURGXFWLRQ LQ DQ\ PHGLXP SURYLGHG WKH RULJLQDO DXWKRU DQG VRXL

\$EVWUDFW

7KHDLP RI WKLV VWXG\ ZDV WR HYDOXDWH D QHZ VXUJLFDO WHFKQLTXH IRU LPUHQKDQFLQJ ERQH GHQVWLW\ ULGJH ZLGWK DQG LPSODQWLQJ VHFRQGDU\ VWDELOLW\

. H \ Z R U G \% R Q H Y R O X P G H Q \ W L \ } H F \ D \ W W L H R R Q L Q W H J U D W L R Q
% R Q H H [S D Q V L R Q 3 R R U E R Q H

, QWURGXFWLRQ

H U H L V Q R T X H V W L R Q W K D W R Y H U W K H O D V W W Z R G H F D G H V G H Q W D O L P S O D Q W V
K D Y H U H Y R O X W L R Q L J H G W R R W K U H S O D F H P H Q W D Q G W K H S U D F W L F H R I G H Q W L V W
H F R Q F H S W R I G H Q W D O L P S O D Q W V L V Q R W Q H Z W K H H D U O L H V W U H F R U G H G
D W H P S W V R I W K H L I I X V H Z H U H G L V F R Y H U H G L Q W K H O D \ D Q F L Y L O L J D W L R Q G D W L Q
E D M J W R \$ ' R G B V K L J I O V F F H A V J Q D } F G H Q W M O D U L P B S B Q D V O V W R Q T X H W Y R O X H
U R R X U H O D F H P H Q W I U D O O W X U L O W D R V W K D Q V R R D U F H F K D F O U X H Z Q I L D F D W X W D F R K L H G Q
O L N H W K W H H I K L Q \ R X U I Y W K Z K H \ Q R X \\$ X L Q P U L O V H S H W W H Z U L H W K W Q H R F Y R L Q W E Q D J U
G L Y U H Q D H G G L W R Q W H \ G R Q R W G H F D \ D Q G D U H U H O D W L Y H O V I U H H I U R P
G H M O R S L J J X P G L V H D \ H \\$ V \ L W K P R V W & R Q F O X V L R Q

H PHFKDQLFDO VW ' •RVWHRWRPLHVGWHORRHGHWVHWERQJ W&K H UKP VQOMFLVDBW
LQFUHDVH SULPDU\ LPSODQW VWDELLPQSQDQMQ &W D,E, &OLW\ SIRQIS GPOQHML W\ PERQH
'LvhUHKQWOLQJ SDWWHUQV DQG SHU LSPRSODQW QEVLMH EFRPHG POCOQZ VRIQDOWXU
Z WUDEHFXODU EXW WKLV WHFKQLTXH GRH
GHQVLW\ %9 RU LP\\$IO DQW HWRQDIEL QULLGVH,
WILSD EHFXODU LQ SHUL LPSODQW ERQH FLD

HUH DOVB REVHUYHG > @ EHWZHHQ VWDQGDUG VLWHV

ODWHULD OV DQG OHWKRGV

DQVLRQ WHFKQLTXH LQ VWDJH ZDV SU

H HGJHV RI WKH LOLDF FUHVWV RI VKHHS ZHUH H[SRVHG DQG WHQ
PPG\QDPLFV LPSODQWV &RUW\H\VRZ\ÂURH LQ VHQHW\Q\\$EVQLV\PAI0 p €
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&LWDW@BQGHZDOOH 6

6XUIDFH 7RSRJUDSKLFDO &KDQJHV 'HQW ,PSODQWV 'HQWXUHV

3DJH RI

RQWRJHQHVLV DQG ULGJH VSO IHY FVLLHORWW KF R Q L T X R QD U H :HFQDHULEGHUHSG 6XUIDF
LQFUHDVH ERQH ZLGWK ZLWK OHVVHU FRP \$ OH FVURIFK HPLQ P Q C H Q [E L] HG LPSODQWV D

5HIHUhQFHV

%UDFHU'DVODH]WX 0\$ \$ODYD -, *D\ (&)RUPDWLRQ ZRQHPLQHWDOL]LQJ RVWHREODVW
ERQH DSSRGILWH BUPGSMDQW VXUIDFH PDWHU RQH JQH WUDQWLRQDO DQG SODVPD VSUD\H
MRXUQDO RI RUDO DQG PD[LOORIDFLDO VXU PDQHORIDF ,PSODQWV
:HQQHUEHUSOEUHNWVVRQ 7 6XJJHVWHG P X NOHU QDQHOMHURUWKH %HUQDUG -3
WRSRJUDSKLF HYDOXDWLRLQ RI LPSODQW FRP \$DHWLYH V XUIDFH PDODQWV FRI IRXU
,PSODQWV
&KDWXU\$HGL \$Q RYHUYLHZ RI WKH FRUURVLRQ DVSHFW RI GHQWDO
LPSODQWV WLWDQLXP DQG LWV DOORIV ,QGLDQ MRXUQDO RI GHQWDO UHVHDUFK 3DUW %